The Builder.

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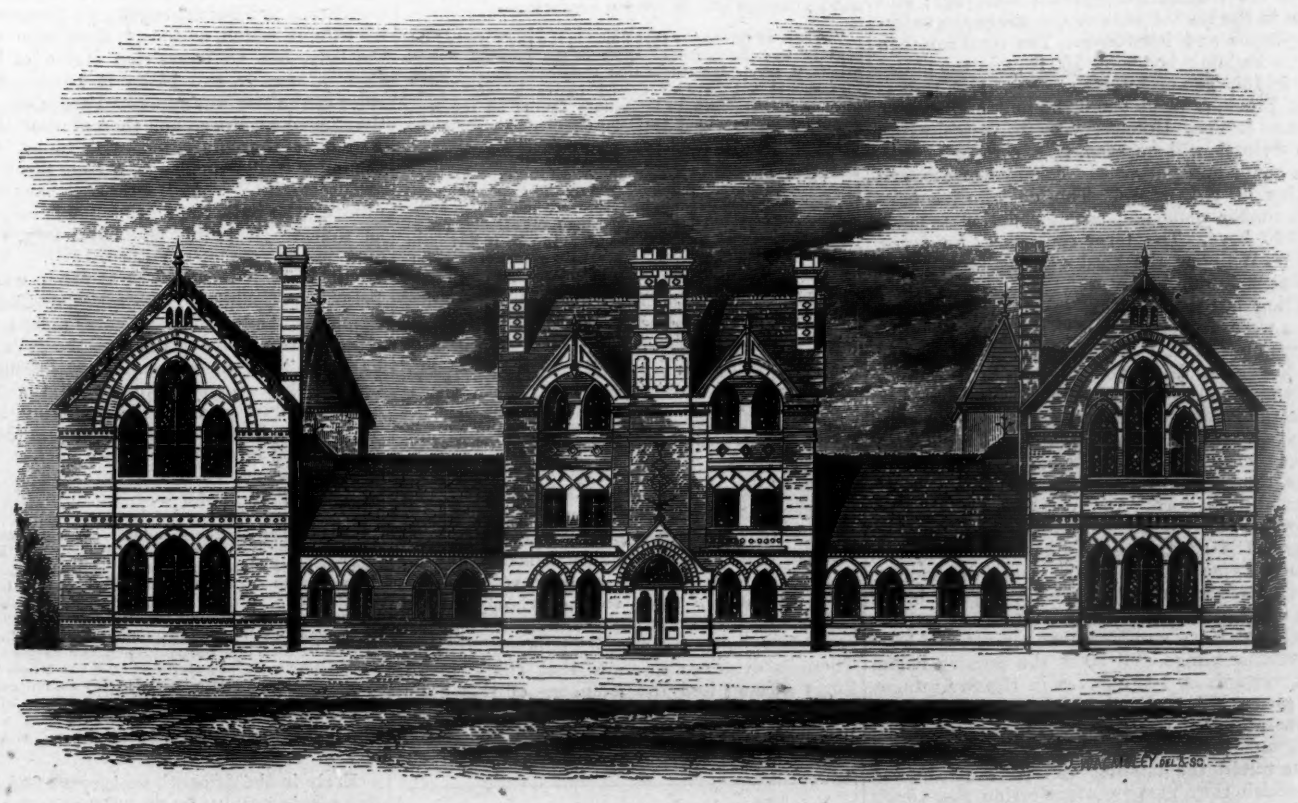
Pauperism and Crime.—The Boys' Refuge at Bisley, near Woking.

PAUPERISM, crime, and the insufficiency of the present Poor-laws have recently been brought prominently before the public by papers read by Dr. Stallard and Dr. Hawksley, in the one case at a meeting of a department of the Social Science Association, and in the other in the rooms of the Society of Arts, under the auspices of the London Association for the Prevention of Pauperism and Crime, Lord Shaftesbury presiding. At the Social Science meeting, Mr. J. Morley, M.P., was in the chair; and on both occasions the subject was discussed at considerable length by a number of gentlemen who have long given attention to it. Startling facts, affording evidence of the rapid growth of pauperism, were adduced, and the public seem to be aroused to the importance of the matter. Let us hope that some real advantages will follow. Dr. Stallard's paper and the reports of the discussion upon it have been referred to the Council of the Social Science Association, with the request that they will "take such steps as they may deem best to promote reform in the administration of the Poor-laws." They must go farther than this, and obtain legislation on other points if the advancing evils are really to be stopped and remedied. With the deepest interest in the object at heart, we must express regret that a fresh society has been formed to effect what the Social Science Association has long more or less actively urged, and is at this moment specially engaged upon. It would surely be better if the efforts of all interested in it were concentrated, and a more speedy result might then be expected. No trifling efforts will be needed to stop the spread of pauperism. Individuals are getting richer, masses poorer; and many causes are in operation tending to bring this about. Besides some that have been dwelt on, we must regard the present enormous amount of Imperial taxation and the inequality of local rating as powerful agents. Whole parishes are being pauperised by these causes alone.

In the exceptionally taxed parishes the small shop-keeper finds it impossible to pay his way, falls out of the rate-paying class into the aid-receiving body, and thus increases the fatal pressure on those who are still struggling. What sound reason can be given for forcing a man who lives on one side of a street to pay 4s. or 5s. in the pound for the relief of the poor, while his neighbour on the other side of it, perhaps even his rival in trade, is not called on for more than 1s. or 1s. 6d. in the pound? The only argument that can be adduced is one of selfishness. It is to be hoped that efforts for a remedy of this evil will be persevered in. Such injustice cannot much longer endure. It is simply a question of time. Again, our system of building on short leases is gradually transferring all house property to a few persons,—handing over the accumulated savings of thousands to the comparatively few landowners. This same system has given us miles of ill-built, ill-ventilated, insufficiently-drained, fever-producing piles of rubbish, which, at the expiration of the short lease on which they have been "run up," will have to be repaired and set in order by the unlucky then owner before delivering them up. If this system do not produce a convulsion one of these years the teaching of history is worth nothing. We hear of one well-known nobleman who can tell the date of the year in which his descendant's income from property in the metropolis will be a million a year, and no one able to say what he will do with it. A promising young nobleman, with some 400,000*l.* a year *already*, has recently put himself under the guidance of an alien church; the coming men of a million a year each may prefer an alien king, or, at any rate, spend their wealth without any reference to the well-being of those who have placed it on their land for them.

One result of this system is that shelter gets dearer; houses grow worse and worse. Overcrowding destroys the stamina and self-respect of their occupants, and produces a population of sickly paupers and evil-doers. If we would prevent the spread of the evils we are deploring the children must be taken in hand. There are 100,000 children in the metropolis alone uncared for who may be made either a curse or a blessing to society, just as society chooses. An enormous responsibility this, surely. Education and industrial training must be afforded to all, and insisted on from all. Parents who will not give their children decent training must be made to do so. This should be one of the first works of the new parliament. The opposition to such legislation would be much less than some seem to fear. Notwithstanding the enormous sums we spend annually in alleviating poverty and punishing the criminal, we do comparatively nothing to *prevent* pauperism or crime. Calculations that we made some little time ago, and which have been confirmed by the statements of Dr. Hawksley and Dr. Stallard, show that the money expended on the poor through the agency of charitable societies, parochial bodies, and private donors must be at least eight millions *per annum:* the punishment of crime, according to official statistics, costs about four millions, and we estimate the cost of crime to the public, the extent to which the criminal class destroy instead of producing, at six millions, making, in the whole, an expenditure of *eighteen millions of pounds sterling annually*.

Against indiscriminate almsgiving we wage war. Indiscriminate medical relief is the first



The Boys' Refuge Farm School, Bisley, near Woking, Surrey.—Messrs. Habershon, Brock, & Webb, Architects.

move towards destroying self-dependence and showing the recipient the way to the workhouse. Of discriminate charity we cannot have too much; the charity that knows, and aids at the right time; that prevents the break-up of the home; that inspires with fresh hope; that shows the field for profitable exertion. The able-bodied should be forced to work, if they would eat; and they should be made to do work that will pay. The work-in-vain system is wasteful, demoralizing, and abominable. We want the result of every man's labour. The payment should be by piece-work. The making and maintenance of roads, embanking rivers, draining, the manufacture of clothes for the poor, for the army, and for the navy, and above all the reclamation of waste lands, are works to which such labour might be fairly applied. There are millions of acres of uncultivated land in England and Ireland on which labour might be profitably employed. We shall want legislation to enable public bodies to employ the destitute. Aid might be given to those who would emigrate —not to the colonies or another country, but to these waste lands at home, there to bring up their children in habits of industry and self-dependence, and to make the desert smile. With less of indiscriminate almsgiving, as we said before, we want more real intelligent charity, personal help, and Christian sympathy;—sympathy—

> "Which hath an operation more divine
> Than breath or pen can give expression to."

Above all things let us take up the children. The strong feeling we have in that direction leads us to make this an opportunity to bring before our readers the last step taken by those who manage what are known as "The Refuges for Homeless and Destitute Children," whose head-quarters are in Great Queen-street, Holborn.

The house there was found too small to receive the crowds of outcasts that came for succour. In 1866 the *Chichester* training-ship offered the means of training for a seafaring life some 200 boys, but the mission still grew, and it was determined to erect a house at Bisley, in Surrey, to which it is proposed to transfer the young and weakly boys from the London Refuge, so that they may be trained to look after cows and pigs, grow vegetables, till the land, and thus be fitted for service at home or in the colonies. To so good an enterprise we wish the best success. The new building consists of a centre and two wings, connected together by corridors. The centre contains the committee-room, store-rooms, living-room for the master, and separate infirmaries. The left-hand wing contains workshops for several departments, and a broad open dormitory over. The right-hand wing contains the dining-room, with a similar spacious dormitory above. In the rear the kitchen and proper offices are erected as separate buildings; and again in the rear of each of the wings are swimming-baths and lavatories. The total frontage of the building is about 160 ft., and the entire cost 5,775*l*. The architects are Messrs. E. Habershon, Brock, & Webb; and the builders, Messrs. Carter & Son, Horseferry-road, Westminster. The style, it will be seen, is a sort of Gothic, with bands and patterns of coloured bricks, and walling of red bricks. The dormitories have open timber roofs, and accommodation is made for 150 boys. The farm consists of 88 acres. Mr. W. Williams, the hard-working secretary of this association, said, at the opening of the new building last month, that in the previous year there were gathered from the streets into the refuge no less than 246 boys, and up to the end of November 310 had been received, and for the twenty-one days of this month 50 more had been received, and still they came begging to be received. We need not enlarge on the advantages accruing to the public as well as to the boys themselves in so large a number being rescued from misery and vice, instead of being allowed to drift into the criminal and dangerous class. The advantages are apparent to any one who will give the subject a moment's thought. At the present time there are 160 boys on board the *Chichester*, being educated and trained for the Royal Navy and Merchant service, 166 boys in another refuge, and 50 at the country home, and upwards of 100 inmates in the two refuges for girls. With a view of further converting the "waste" going on in the human material and turning it into useful labour, the committee have raised the building we now illustrate, and to which they purpose transferring the young and weakly boys from the London Refuge, so that they may be fitted for service at home or in the colonies.

While urging the immediate necessity for larger and more comprehensive measures to stem the advancing tide of pauperism and crime, we point with admiration to what is being done by this particular association.

THE HISTORY OF ITALIAN SCULPTURE.*

IN the fourteenth century Marcus Romanus was the one sculptor, of whom Rome can show any proof, and this is only in one work, a statue of Saint Simeon, the prophet, behind the high altar of the church dedicated to him at Venice. Some writers have attempted to divide this century between Marcus Romano and Pietro Cavallini, the scholar of Giotto. Vasari, for instance, names Cavallini as the sculptor of the crucifix at St. Paul's, which is said to have spoken to St. Bridget; and Horace Walpole says, that it was he who made the shrine of Edward the Confessor, and designed the crosses which marked the resting-place of Queen Eleanor's body. Mr. Perkins, in the book we are now noticing,† denies both these statements. There were, however, two sculptors in the fifteenth century, Paolo Romano and Gian Cristoforo. They were both goldsmiths as well as sculptors. Antonio Filarete mentions that Paolo helped to make the silver statues of the twelve apostles for the altar of St. Peter's, that were destroyed in the sack of 1527. His principal works are the statue of St. Paul on the Ponte Sant' Angelo, the tomb of Fra Bartolomeo Caraffa in the church of the Knights of Malta, and the monument of Cardinal Stefaneschi at Santa Maria, in Trastevere. The sarcophagus of Fra Bartolomeo is divided into panels by twisted columns, containing his arms and a mortuary inscription in Gothic letters; and on the top of it lies the knight dressed in armour and grasping the handle of his sword. The cardinal's tomb consists also of an effigy on a sarcophagus, but it has the addition of a marble canopy, with a frieze of coloured mosaics. Gian Cristoforo was the scholar of Paolo, and like his master was a goldsmith, as, with the assistance of two more scholars of his master, Niccolò della Guardia and Pietro Paolo da Todi, he made the twelve silver statues of the apostles for the Papal chapel at St. Peter's. He is also mentioned as the sculptor of figures and busts at Sta. Maria, in Trastevere, and as one of the artists employed upon the tomb of Gian Galeazzo Visconti, at the Certosa at Pavia. Mr. Perkins gives two Roman sculptors to the sixteenth century, Giovanni Battista and Andrea Romano, the first of whom accompanied Giulio Romano and Primaticcio to Mantua, the last being also employed in the same city. In connexion with this paucity of local sculptors our author makes the following remark:—

> "When we remember that Rome in the early part of this century was the home of some of the greatest foreign artists, it seems incredible that their example and teachings should not have developed native talent. From Niccola Pisano down to Benvenuto Cellini all the great Tuscan sculptors went to Rome; some, like Donatello, Ghiberti, and Brunelleschi, to study antique remains; others, like Simon Donatello, Filarete, Rossillino, Mino, and Michelangelo, to reside and work there. All were received, honoured, and employed by the Popes; the city became their chosen place of residence, being then, as she still is, the most sympathetic and the most attaching of all places to those whose lives are devoted to art in any form. Everywhere at Rome we find that the works of merit are by foreign artists. At St. Peter's and S. Pietro in Vincoli they are by Pollajuolo and Michelangelo; at Sta. Maria del Popolo and Sant' Agostino by Andrea and Jacopo Sansovino; and in the desecrated cloister of the latter church by Mino and Mino's imitators; at Sta. Maria del Popolo and the Pantheon by Lorenzetto; at Sta. Maria dell' Anima by Tribolo and Michelangelo Sanese. Indeed, with the exception of the pulpits, ciboriums, and tombs of the Cosmati, and the works of Paolo Romano, which hardly rise above respectable mediocrity, there are no Roman sculptures of interest in the many churches of the Eternal City."

The history of the Comacine architects forms an early feature in the account of sculpture in Lombardy. For twenty years an island in the Lake of Como held out against Alboinus and his followers. It contained numbers of fugitives from all parts of Italy, some of whom were the skilled workmen known as the Maestri Comacini, and subsequently as "casarii," builders of houses. There is evidence to show that the Lombard kings affranchised the members of this guild, after the island submitted, and allowed them the privilege of making contracts. King Rotari, especially, in his code of laws, protected the Maestri Comacini, whose free jurisdiction, explains Mr. Perkins, was recognised by the name of Free-masons. Although the miserable state of the country, owing to war and pestilence, prevented any considerable structural operations, for some time after the conquest, Queen Theolinda soon appears upon the scene, employing the Magistri Comacini to build the duomo at Monza, and recording the conversion of her husband Agilulph in a bas-relief over the portal representing the baptism of our Lord. A century after this other Comacine masters were still building in the same style, which is Debased Roman with strong Byzantine tendencies. There is an octagon font in the duomo at Cividale, erected by St. Calixtus, bishop of Aquileja, which well illustrates its peculiarities. "Its roof is supported upon slender columns, with rude Corinthian capitals. Their intermediate spaces are spanned by round arches, whose spandrels are adorned with clumsily-represented Christian emblems. The bases of the columns rest upon a marble parapet sculptured with figures symbolical of the four evangelists, each holding a book, inscribed with verses by Sedulius, a Latin poet of the fifth century, and an ornate Greek cross, with candelabras and palmettos executed in relief by lowering the surface of the stone around their clumsy outlines, within which the details are indicated by furrows dug out in the stone." Milan so heartily patronised the arts that the fourteenth century saw no fewer than 2,000 monuments in its churches, according to the statement of a chronicler of that period; but a decree of the Council of Trent led to many of them being taken down. About this time we first meet with the Campionesi, a company of architects and sculptors so called, from the district of Campione. Five sculptors, known as "da Campione," were engaged upon the duomo at Modena in the thirteenth century. Two others, Matteo and Bonino da Campione, are accredited with the famous Arca di Sant' Agostino at Pavia, which took twelve years to complete. In this structure "the effigy of the saint, covered with a winding-sheet held up at its corners and sides by six angels, lies upon a mortuary couch seen through the open arches which support its second story. The statuettes of the apostles are placed, two by two, in compartments around the lower or basement story, separated from each other by pilasters faced by statuettes of the Virtues. Above them smaller statuettes of saints and prophets stand against the pilasters of the second story, upon which rest consoles supporting seated figures of saints and martyrs. A row of pointed gables, decorated with crockets and finials, runs round the uppermost story, upon which is a series of bas-reliefs, representing incidents in the life of St. Augustine, separated from each other by twenty statuettes." One of these artists was the sculptor of the monument that Bernabo Visconti erected to the memory of his wife, in which, curiously, there is no effigy of the lady, but an equestrian statue of himself, clad in armour and bâton in hand. And the elder of the two was appointed architect, first of the duomo at Monza and then of that at Milan. At Monza there is a mortuary tablet, set into the outer wall, which says, "Here lies the great architect, the devout Master Mattheus da Campilione, who built the façade of this holy church as well as its pulpit and baptistery, and who died in the year of our Lord, 1396." The first architect of the cathedral at Milan was Marco Frisone da Campione, who with four Campionesi formed a body of architects and sculptors, attached from the beginning to the "Veneranda Fabbrica." The contemporary building, the Certosa, however, was placed in the hands of Bernardo da Venezia. This building Mr. Perkins, with others, considers surpasses the duomo in artistical interest, for it is a perfect museum of sculpture by the best artists of the Lombard school. He says of it,—

> "Few Italian churches, indeed, can compete with the Certosa, whose stillness is broken only by the hushed tread of some white-robed monk, who passing on, leaves the visitor to an undisturbed enjoyment of the objects around him. After scanning every rich detail of the façade, he enters through the sculptured portals into the nave, examines the paintings and marbles in the chapels, the tombs that line the transepts, the exquisitely sculptured doorways of the sacristies, the bas-reliefs and terra-cottas in the vast cloisters, the richly carved capitals and cornices, and carries away with him a sense of harmony and completeness only to be derived from a series of works which belong like these to one school and to one time."

Early in the fifteenth century we find Jacopino da Tradate working for the "Fabbrica del Duomo." He was called upon by the Duke Filippo-Maria

* See p. 1, *ante*.
† Italian Sculptors. Longmans & Co.

to commemorate the entry of Pope Martin V. into Milan, by erecting a colossal statue of him in the duomo. This admirable figure, which is more than twice the size of life, is seated on a draped throne, in full pontificals, holding the keys in one hand and giving the benediction with the other. Jacopino was also the author of the half-figure of God the Father in bronze in the centre of the roof of the apse of the duomo, and the reputed author of the tomb of Pietro Torello at Sant' Eustorgio. Before his death he removed to Mantua, to work for the Duke Francisco Gonzaga. The school of the Campionesi characterized by "simplicity and extreme quietness of action in its round-surfaced, short-proportioned statuettes and bas-reliefs" was now supplanted by that which came in with the Renaissance, remarkable for its "violent action, intense facial expression, bordering on grimace; clinging draperies, great length of limb, and very flat treatment of surfaces." A transitional style appears to have been used by the brothers Mantegazza, in the first part of their career. They did so much work at the Certosa for the Prior Filippo de' Rancate, that their pay amounted to nearly the cost of a house at Milan, which he made over to them as a discharge of his debt, stipulating that its value over and above their account should be made up in future work. Some of their later work is marked by the exaggerated gestures and expression we have just quoted. Giovanni Antonio Amadeo, or Omodeo, who worked with them, on the Certosa, is considered the most remarkable of the Lombard sculptors. He was the son of a farmer, living near the Certosa. When he was nineteen we find him with his brother Protasino, at work upon sculptures for this building; and in 1490 we read he received the appointment of head architect to it, and designed and carried out the façade. He erected the monument to the daughter of Bartolomeo Coleoni, at Basella, near Bergamo, spoken of as one of the most charming works of the kind in Italy: delicate, simple, and beautiful. The slender figure of the deceased, in an embroidered robe, lies with her head upon an ornamented pillow, upon a sarcophagus, enriched with statuettes. There is a string of jewels upon her head, and a necklace round her throat. Her eyes are closed, and her arms folded upon her bosom in serene repose. Her father commissioned Omodeo to build a family chapel at Bergamo, immediately after its completion, which he designed in the richest Renaissance style. At Cremona he worked upon the shrine of the Egyptian martyrs; and in the family chapel of the Borromei on the Isola Bella he executed two monuments which show his delicate touch and artistic eye to considerable perfection. But when he undertook the crowning of the Milanese duomo with a cupola he resigned all other engagements and removed to Milan. Mr. Perkins considers Omodeo would have ranked with the Tuscan Quattro Centisti had his style been less mannered and more elevated. After him come his rival Cristoforo Solari, some time head architect of the Milanese duomo, with his scholars Giovanni Dentone, Giovan Giacomo della Porta, Girolamo da Novara, and Andrea da Fusina; the latter of whom figures in the records of the Fabbrica, poor unfortunate, as continually asking for money in advance. It is, perhaps, some clue to this inability to meet his current wants with his current industry to be told that his work was "tasteless and clumsy, though smoothly and skilfully executed." After this band little is known beyond the names of the sculptors, who clustered "like bees" about the duomo in the last half of the fifteenth century, and stored up their work in it. The Fabbrica held out great advantages, which were appreciated to their fullest extent. The young were taught their art and the old were pensioned; which privileges were forfeited by seeking work elsewhere without permission. Mr. Perkins gives full accounts of the labours of other Milanese sculptors not employed on this great work; but who have materially enriched Lombardy with their works. We learn from them the lesson that we need not grieve because our work is not displayed in the high places of the world. They teach us "to labour and to wait." Recognition is sure to come, if our work be worthy of it.

We must give the pretty piece of word painting with which our author limns in Venice. He says the Venetians had more feeling for colour than for form, and accounts for this preference by their relations with the East, and the situation of their city between the formless sea and everchanging sky:—

"When we look around us at Venice we see colour expressed in every object which meets the eye. St. Mark's, with its marbles and mosaics, is ablaze with it; the Ducal Palace is toned like the inside of a sea shell; the façades of the stately buildings which line the Grand Canal are variegated with disks of serpentine and porphyry; the sails of the fishing-boats vary in tint from a golden yellow to a deep amber; the water in the side canals, which as we emerge from them into the Giudecca or the Lagoon expands into the broad sea, is as blue as those long strips of sky between the black chimney-tops, which in like manner widen out into the measureless heavens. Seen from afar through the early morning haze Venice looks like some 'vaporous amethyst,' and at sunset, when the flaming heavens above her are reflected in the smooth waters, her towers and palaces grow grey upon a pavement of fire, like ashes resting upon glowing embers. City and sky and sea are then all visionary, all indistinct in outline, and we feel why a great school of colourists rather than a great school of sculptors grew up at Venice. Venetian sculpture was always strictly decorative, and the artists who practised it were rather marble-workers than sculptors, men skilful in carving statuettes and arabesques, but incapable of raising their art out of its Mediæval dependence upon architecture."

All the leading Venetian sculptors for three hundred years were architects. In this span of time three styles of architecture prevailed—Gothic, Renaissance, and Baroque, and the sculpture was adapted to each with like skill. The Gothic was practised by Filippo Calendario, the Massegne, and the Bons; Andrea Rizzo represents the Lombardi; Leopardi the Renaissance; and Alessandro Vittoria, with his followers, the Baroque. Up to the thirteenth century, Byzantine influences predominated, as many details on St. Mark's prove, especially the central bronze door, which but for its Latin inscriptions and saints might be taken for Byzantine work. The first indication of less formalism pointed out by our author as the beginning of a national style, is shown in the scriptural bas-reliefs upon the marble columns of the ciborium, and in the baptistery, and in the little figures at the base of the columns in the Piazzetta. The Niccolò di Barattieri who raised these columns and sculptured the figures, a Maestro Donato, and Johannes di Venetia are the only Venetian artists who are known to have flourished before the fourteenth century. After the new century came in, we find Bertuccius casting the external gates of St. Mark's, and two anonymous Venetian sculptors at work, the one making an ancona of wood for the altar of the duomo at Murano, and the other carving the Madonna della Misericordia above the Ponte del Paradiso at Venice. A third is heard of at Genoa. These, with the bas-reliefs of the second half of the century, are exceedingly rude compared with the contemporary sculpture of Tuscany. The Ducal Palace sculptures are so perfectly adapted for the places they occupy, are so complete as a series, and harmonize so well with the scheme of the building, that Mr. Perkins considers they must have been designed by the architect Filippo Calendario, and not, as some writers have endeavoured to show, by the Bons a hundred years afterwards. This Calendario was originally a sailor or shipbuilder at the fortress of Murano, and by his talents and industry at last occupied the post of capo-maestro of the ducal palace and superintendent of public works. Mr. Perkins accounts for his acquiring the necessary skill to maintain such a position by suggesting that Andrea Pisano must have given him some instruction. He is, let us hope he may ever be, the solitary example of an architect being hanged. He was implicated in the conspiracy of Marino Faliero, or supposed to be so, and the Council of Ten sentenced him to death, gagged him, and hanged him from the red columns of the balcony of the ducal palace he had beautified. His work undergoes an appreciative criticism in the work before us. Instead of examining it minutely, we must proceed with a more general survey of the stores Mr. Perkins has collected. He describes the type of tomb common at Venice upon which so many of her sculptors spent their best thoughts, as the most perfect of any, because it is beautiful to the eye as well as solemn and appropriate. The sarcophagus is generally set high up against a chapel wall under an arched canopy. Its front is divided into two panels full of bas-reliefs, by a statuette of Christ, or a group of the Madonna and Child under a little baldacchino; and at each end there are figures of the Angel of the Annunciation and the Virgin. He says the recumbent figure of the deceased is placed upon the sarcophagus as though it was laid out in church before burial, and angels are placed to guard it, either holding back curtains that fall from the canopy above, or standing by with censers in their hands, or supporting the cushion on which the head is placed. The tombs of the doges afforded ample opportunity for the sculptor's chisel and fancy. A Renaissance tomb, by Pietro Lombardo, consists of a sarcophagus resting on a projecting base, supported upon consoles, having sirens holding vases in their hands, rich leaf-work and an eagle with spread wings on its front, and has a frieze so exquisitely sculptured that a needle rather than a chisel seems to have been the implement used in its execution. It is, however, upon buildings that the chief works of the Venetian sculptors are to be sought. After Jacopo Sansovino's forty years' reign in Venice, during which period nothing was undertaken without his sanction, his defects were exaggerated by his successors into the style called Baroque. War was declared against the straight line, ornament was heaped on regardless of construction, limbs twisted into impossible attitudes, and draperies hollowed out, to look as though honeycombed from natural causes rather than by the chisel. This illogical, thoughtless, capricious sort of work is not to our author's mind, who, accordingly gives it no prominence in details, and closes his account of Venetian sculpture with a sketch of the life of Alessandro Vittoria, under whose auspices it commenced its eccentric rule.

In Verona we find Magister Urso and his scholars Gioventius and Giovano, from the Isola Comacina, at work upon a ciborium, on the church of San Giorgio di Val Pulicella. Then comes a gap with only Maestro Pacifico, through which several centuries rolled away. In the twelfth century there was a little band of sculptors at work upon the church of San Zeno, making the bas-reliefs that cover the walls of the façade on either side of the great portal. One of them Adaminus, carved his name upon a capital of a shaft at the entrance to the crypt; so we may conclude that it was he who sculptured the centaur hunting a stag, the dead fox hanging on a staff carried by two cocks, imaginary animals, and such droll conceits, upon the architrave above. The first great Veronese artist, our author asserts, was Victor Pisano; for before that period, if the lords of Verona wished to build a tomb they were obliged to send to other cities for artists. But it would be difficult, he continues, to find more delicate shades of modelling, greater truth to nature, and more exquisite taste in the use of costume and arrangement of drapery than are to be found in some of Il Pisanello's work, though he looks upon him as a medallist rather than as a sculptor. Among the cinque-cento sculptors our author mentions Girolamo Campagna, the author of the clever bas-relief, relating the story of a murdered man resuscitated by St. Anthony, that he might testify to the innocence of his father accused of his death, in the Cappella del Santo at Sant' Antonio. Neither of the sculptors of this period, however,—not Giulio di Girolamo della Torre, the ex-lawyer; nor Giovan Battista, who made the crucifix for the duomo at Mantua Vasari praised so highly; nor Alessandro Rossi, who made the statue of San Bernardo Abate for the church of Sta. Maria at Carrara, made anything so exquisite as the marble candelabra in the duomo, ascribed to an unknown Paolo (detto delle Breze) from Rome.

Vicenza, the birthplace of Palladio, sent a sculptor to Padua in the first half of the fifteenth century, to carve an elaborate pilaster for the Cappella del Santo in the church of Sant' Antonio. A hundred years after this, another Girolamo da Vicenza was making the tomb of Pope Celestine V., in the church of Sta. Maria Collemaggio at Aquila, in the Abruzzi, and another Vicentine sculptor, Rocco, was executing marble works for the Collegiata of Sta. Maria Maggiore at Spello. Two other sculptors left Vicenza to work elsewhere, and left the field free for Palladio's fame.

Padua, associated with the work of many renowned Tuscan sculptors, has also produced a few artists of eminence. First among these was Fra Clarello, monk, sculptor, architect, and standard-bearer, in the army of the Pope, that marched to Padua to put down Ezzelino; but his works have all perished. Bartolomeo Bellano is the next. He worked for Pope Paul II., at the Palazzo di San Marco, and was employed at Perugia in casting a bronze statue of him for the outside of the duomo. His pupil, Andrea Briosco, called Riccio or Crispo, from his curling hair, is more famous. He was the author of two clever bas-reliefs, in the choir of Sant' Antonio, which have been said to contain lessons enough to make a modern sculptor; and of the bronze candelabra, of which his patron Gian Battista Leon wrote, "Well may the city be proud of a work so admirable in every part, so beautiful in

form, and so perfect in execution;" and of which Mr. Perkins gives an etching and full details. There were several other Paduan artists who did good work, but his fame eclipses them all.

Mantua dedicated herself to Virgil when the illustrious poet had made his birth-place famous. His name was upon her banners and on her coins, and when the magistrates wished to celebrate a victory they decreed that his statue should be erected in a niche above the Piazza that he might appear to be taking share in the events of the day, and the joys and cares of his compatriots. This statue proclaims the condition of art to have been but rude when it was erected. Twenty years afterwards a marble alto-relief was made of him, the execution of which is somewhat better. These and all the earliest sculptures at Mantua are anonymous. Three men, Mantegna the painter, Alberti the architect, and Sperandro the medallist, influenced much of the subsequent work at Mantua. Mr. Perkins says of the foremost of these three that he Christianized Paganism, and of Giulio Romano that he Paganized Christianity.

Most of the cities in Central Italy hold high places in the history of art as fields on which good work has been done, and great artists produced. Bologna stands foremost in virtue of Francia and the Caracci; then comes Parma, made famous by Corregio. Their sculptors are not quite so world-known. But Bologna boasts her beautiful and gifted sculptures and vixen, Properzia de Rossi; Ferrara can claim Alfonso Lombardi; Modena is proud of Guido Mazzoni and his scholar Antonio Begarelli; Reggio of her two Clementis; and Parma of Benedetto di Antelamo. Throughout his attractive volume Mr. Perkins gives illustrations of the chief works of the most celebrated artists. Thirty-nine etchings, some of them of great beauty, are given, and upwards of a dozen woodcuts. Opportunity has, of course, to a great extent, guided their selection; although there are none included that do not specially illustrate some peculiarity, there are necessarily many sculptors left unrepresented altogether. Of the works of the artists just enumerated, only one is illustrated, which is a group from a mortorio in the church of San Giovanni Decollato at Modena, by Guido Mazzoni. Those who would qualify themselves for looking at sculpture with some knowledge of its chief sculptors and their styles, those who would enlarge their sources of interest in their fellow-workers and their appreciation of their works, would do well to read every page of Mr. Perkins's book.

METROPOLITAN EXTENSIONS OF THE SOUTH-WESTERN RAILWAY.

IN addition to the important extensions that have been recently completed and opened to the public, in connexion with the railway systems of the metropolis, others—the last, probably, for a considerable time to come, excepting the East London line only—have again to be announced, namely, the new line of the South-Western Company from Kensington to Richmond, and the new direct line of the same company between Wimbledon and Kingston. The new lines, the successive openings of which have been most recently noticed in the *Builder*, the Metropolitan extension from Paddington to Brompton, and, next, the Metropolitan District from Brompton to Westminster Bridge, are parts of the inner circle, the precise course of which was definitively settled by Parliament in 1864. The Kensington and Richmond line and the metropolitan system are intimately related in two distinct aspects. The principal of these is, that the Metropolitan has running powers at mileage rates over the new line, upon which the company may run trains by a working junction at Hammersmith, from Moorgate-street, or any other station on the inner circle, through to Kew, Brentford-road, or Richmond. For the present the Metropolitan Company will book passengers to any of the stations on the new line, but will not probably take advantage of the running powers till spring or summer, when the pleasure traffic sets in. The Metropolitan Company has just completed a greatly enlarged new station at Hammersmith, which will continue to be used as a terminal station for that locality. The station of the new line is close to that of the Metropolitan, but on a higher level; a covered stair and gallery communicates between the two stations. The course of the new line from its start at a point a little to the north of the West Kensington Station, on the West London line, is by a bend of nearly a semicircle to the north and west, the springs of the arch being at the West Kensington station on the east, and the Hammersmith Station on the west. In its course the line passes under the Metropolitan line (Hammersmith and City), and bending round to the west, rises to the high level station, close to the Metropolitan station, the high level having been necessitated by the headway required for the Grove-road, which passes under the line close to the two Hammersmith stations. The junction between the Hammersmith and City line, and the Kensington and Richmond line, is effected between the point where the last-named crosses under the other and the station. The booking-offices and stations on the new line are all more compact and promising for the comfort of passengers than that at Hammersmith, which straggles, with a variety of angles and curves, over what seems to be, but possibly is not, an unnecessarily large aggregate area. Abundant platform accommodation has been provided at this as at all the other stations indeed, but it is to be regretted that the chief advantage of planked platforms — their being warmer than stone or asphalte—has been sacrificed here, from considerations of economy it may be presumed. The long platforms, about 15 feet above the ground level, and open to the bottom, are laid with undressed planks, and five-eighths or three-quarters of an inch open at the joints. The planks will, of course, last much longer with the air playing between the edges; and will discharge the rain that falls upon them more readily than a close surface, but stone or asphalte would have been preferable for comfort, during dry cold, in such a situation. The line is carried over the public road by a wrought-iron girder bridge of 90 feet span, very much askew. The floor of the bridge is of double planking, and wrought-iron buckle plates, packed between, to deaden the sound of passing trains, with Burnetized saw-dust. From this point the line curves round on a viaduct of about a mile in length, and pursues a course nearly straight, and almost due west, for about three miles, to Brentford-road. About midway there is a station for the service of Turnham-green. The course of the viaduct is nearly parallel with the London and Brentford road; the average height of the work is about 20 feet to the rail level; the arches are of 20 feet span. There are ten wrought and cast-iron bridges in the viaduct of from 76 feet span downwards, all waterproof and packed to deaden sound. The line crosses Acton-green upon a falling gradient of 1 in 120, and at the west side of the Green enters a cutting of considerable length and depth, in which the line passes under the Brentford-road, which is carried across on a wide skew bridge. In this locality, also, the mains of the water and gas companies, which serve the district, are borne across the line between plate girders of wrought-iron.

At Brentford-road the line curves to the south, and reaches the station for Brentford in the course of the curve. The station here is large and commodious, with four lines of rails, and ample platform accommodation. The up platform is about 24 ft. wide, and covered the whole width. There is from this station a short branch connecting the line with the North London, by which trains may be run from any of the stations on the North London line to Kew Gardens and Richmond direct, instead of, as now, by the long detour by way of Barnes. There is also a junction here with the South-Western loop-line, giving communication with Brentford, Hounslow, and other stations to the south-west. At a short distance from the Brentford Station the new line crosses over the South-Western loop-line and immediately afterwards over the Thames by a bridge with cast-iron piers and lattice girders. The bridge has five spans of 108 ft. 6 in. each clear, with about 20 ft. of head-way at high water. The cylinders are square, with small three-quarter columns at the corners, the columns cast solid. The cylinders are let down deep in the London clay, the base of the foundation excavations being filled with concrete. The cavities of the cylinders are filled with brickwork and cement. The upper portions of the piers rise considerably above the upper edge of the girders, and show deeply-indented panels filled with alto-relievo ornamental work. They show semicircular heads on the faces, and are surmounted by globular lamps. The abutments are of red brick, and relieved with plinths, columns, and caps, of Portland stone.

The most important work between the river and Richmond is the station opposite the new entrance to Kew Gardens,—a station at which doubtless a large pleasure traffic will be done, for which provision has been made in platforms and sidings. In its onward course the line passes under the Richmond-road and Sandy-lane by a tunnel-bridge of 150 ft. long, and a little further on bends round and runs alongside of the Richmond and Windsor line to the new station, close to the old one at Richmond, which will be used in common by the South-Western, the Metropolitan, and the North London Companies. Passengers will here change for the Windsor, Reading, or Kingston trains. The line is about seven miles in length.

The extension from Malden to Kingston is important in itself, in passing through about 2½ miles of exceedingly pleasant new country, admirably adapted for residence, but is even more important in the connexion it opens with the London, Chatham, and Dover and Brighton systems. In addition to the new line between Malden and Kingston, and the new station thereon at Norbiton, near Kingston-hill, the South-Western line has been doubled between Malden and Wimbledon, and there is now a regular service between Ludgate-hill, Blackfriars, and Camberwell-road stations *viâ* Herne-hill, Tulse-hill, Streatham, Tooting, Wimbledon, Malden, and Norbiton, and Kingston. Numerous other advantages, in interchange of traffic between north and south, east and west, have been secured by the opening of these new lines, and the train arrangements that have been entered into between the various companies. The changes and enlargement of service consequent upon the opening of the lines, involved the addition of above 300 trains daily from New Year's-day, when the new services were entered upon with the opening of the lines.

The works were designed and carried out under the superintendence of Mr. W. R. Galbraith, engineer to the South-Western Company. Messrs. Brassey & Ogilvey were contractors for the Kensington and Richmond line; and Mr. P. Mortimer, resident engineer. Messrs. Aird & Sons were contractors for the Kingston and Wimbledon line; and Mr. A. M'Donald, resident engineer.

THE ANTIQUITIES OF PARIS.

THERE is sad work going on amongst the relics of old Paris. The Paris correspondent of the *Telegraph* relates a circumstance to illustrate this. M. Récappé, a well-known amateur and dealer in works of art and *virtù*, having heard that a considerable quantity of carved wood had been sold as rubbish, hurried to the spot. One glance at the confused heap in a corner of the yard was enough for M. Récappé. The contractor asked 1,200 francs for the lot, and the amateur paid the money down. On examination, this huge pile of firewood turned out to be an inestimable treasure—no less than the whole of the woodwork which had decorated the old reading-room in the "Bibliothèque Impériale," a marvel of artistic workmanship, supposed to have been designed and carved for the great Colbert. When the woodwork had been cleansed of all impurities, even Récappé himself was astonished. The carvings were voted, by competent judges, to be among the finest productions of the reign of Louis XIV., and were purchased soon afterwards by M. Maillet du Boulay, a rich amateur, for the sum of 8,000f. Another instance of like enormity happened three years ago. A wrought-iron balustrade was taken down from the grand staircase of the same "Bibliothèque," and was also sold by weight to some *Auvergnat*. A goldsmith of Gonesse saw it, and became its happy possessor for the sum of 1,200f. On being told of the affair, the inevitable M. Récappé went immediately to Gonesse to make himself, at any cost, master of the balustrade, which is said to be one of the most wonderful specimens of wrought-iron in existence.

Quiet "Practice" on the Piano.—The Paris journal *Le Ménestrel* mentions a new invention which should earn for its author the gratitude of millions. It consists of an apparatus, which, applied to any piano, will deaden the sound emitted. There are few persons who have not been sometimes distracted by the "practising" of some too persevering player, and who would have paid any price for such a "mute" as that described. But will the players use it?

THE DEAD YEAR.

AMONG the duties which fall to be performed by the public journalist at this "festive season," is the mournful task of reviewing the losses which the world has sustained by death. He is once more called upon to chronicle a long roll of public characters, distinguished in the various walks of professional life, who have closed their earthly career during the past twelve months. Some had attained to greatness, others had but given promise of becoming great when the fell destroyer came; but of one and all it may truly be said that they died and left the world better than they found it. Many eminent names are inscribed in the general obituary of the year; the church, the senate, the army and the navy, literature, the law, and the medical profession, each has lost a number of notable representatives both at home and abroad. It falls more within our province, however, to record the losses that science and art have sustained. Here we have to mourn many bright ornaments in our own and in other countries. The year 1868 will be chiefly memorable as that in which died two of the most renowned men of any age or country. The great natural philosopher—the discoverer of the law of polarization of light by reflection—the inventor of the kaleidoscope—the founder of the British Association for the Advancement of Science.—Sir David Brewster breathed his last at his seat near Melrose on the 10th of February, at the patriarchal age of 87. His illustrious friend and countryman, Lord Brougham, followed on the 7th of May, at the still more advanced age of 90. In the deaths of Brougham and Brewster, Scotland lost two of her most illustrious sons, and the world two of its greatest benefactors. Science and art, as we have said, have suffered numerous and great losses. Baron Marochetti departed with the old year, having died in Paris on the 28th of December, 1867, aged 63. About his merits as a sculptor there is a diversity of opinion; while he lived he enjoyed a considerable reputation, and we are content to respect the old maxim *de mortuis nil nisi bonum*. With the dawn of the year—on the 2nd of January—passed away John Doyle, better known as "H. B.," the celebrated political caricaturist, whose works caused an extraordinary amount of public interest forty years ago. His likenesses of Sir Robert Peel, the Duke of Wellington, and other public men, have never been excelled. He was father of the artist who designed the inimitable and familiar frontispiece of *Punch*—the well-known "Dicky Doyle" of "Pips, his Diary," and "Brown, Jones, and Robinson," celebrity. Within a few days after died M. Claudet, the eminent photographer, of Regent-street, who first introduced into this country the old daguerreotype process, in the year 1839, and made various useful discoveries in connexion with his art. Also Theodore Rousseau, one of the most celebrated landscape painters in France. M. Rousseau died at his beautiful retreat at Barbizon, on the skirts of the forest of Fontainebleau, whence he drew his inspiration. He was 55 years of age. On the 24th of this month the death was recorded of Dr. John Davy (born 1790), an able chemist, geologist, and physiologist, and brother and biographer of the celebrated Sir Humphrey Davy. In February, William Herapath, the well-known chemist and toxicologist, of Bristol, was taken from us in his 72nd year; and in the following week, singular to say, another member of the Herapath family, John, proprietor of *Herapath's Railway Journal*, and author of "Mathematical Papers," died at the age of 78. The death of Ball Hughes, the sculptor, took place at Boston on the 5th of March. Born in London in 1806, he was a pupil of Baily for seven years, during which time he gained several important prizes in competition. The Royal Academy gave him a silver medal for the best copy in bas-relief of Apollo, and the Society of Arts awarded him a gold medal for an original composition, "Pandora brought to Earth by Mercury." Mr. Hughes emigrated to America in 1829, and executed a large number of works in the States, some of them of great excellence. M. Charles Méryon, the famous French etcher, who died also in the beginning of March, was principally known by his admirable etchings of Parisian streets and buildings. Towards the close of this month was announced the demise of Bernard Mulrenin, a distinguished miniature-painter, of Dublin, and president of the Royal Hibernian Academy; as also of M. Picot, the veteran historical painter, of Paris, aged 82. He obtained the first prize of L'École des Beaux Arts with his "Mort de Jacob," so long ago as 1813. Herr Vandernuel, the eminent architect, of Vienna, died in April, and Mr. Carmichael, a well-known English landscape painter residing at Scarborough, in May. The end of this artist was painfully sudden. He had been out walking, and on his return to his studio was seized with a fit, which terminated fatally in a few minutes. Mr. Carmichael was 68 years of age. At the close of May we had to speak of the death of John Burnet, engraver, painter, and writer on art, the friend of Sir Walter Scott, and of Wilkie and Allan, the painters. A descendant of the famous Bishop Burnet, he was born in Edinburgh in 1785. His engravings of Wilkie's pictures are well known. Many of his engravings are from Burnet's own pictures, or illustrations of his own books. Among the former are "The Greenwich Pensioner," the original of which was purchased by the Duke of Wellington; "Feeding the Young Bird," "The Draught-players," and "The Mouse." His literary works include, "Hints on Painting," "Landscape Painting and Oil Painting," and lives of Rembrandt and Turner. Louis Royer, the celebrated Dutch sculptor, died at Amsterdam, on the 5th of June, aged 75. This day month (on the 5th of July) Italy lost Giovanni Bastianini, a young sculptor of undoubted genius. He produced busts in terra-cotta of marvellous truthfulness and grace: of one of which at the South Kensington Museum we have recently spoken. Unfortunately for his reputation, his purse being light, his line of labour was confined to the pseudo "antique;" that is, presenting as ancient works the productions of his own hands, washing the marble of his busts and statues with tobacco water until they became so discoloured, that even the most suspicious could not pronounce with any degree of positiveness, by merely looking on them. Bastianini was the son of a poor stonemason, of Fiesole, and began life as a worker in the quarries. Through the patronage of the Chevalier Inghiromi, he learned the rudiments of the art of sculpture, and afterwards was employed at a small remuneration by Freppa, a well-known dealer in curiosities, to execute for him those works in terra-cotta which have since found their way into great national collections as the recovered masterpieces of Early Italian art. One of them, the celebrated bust in terra-cotta of Benivieni, which was bought for a trifling sum by the Florence dealer, and afterwards sold for 13,000 francs, at a public auction in Paris, is now deposited in the Louvre. This promising genius fell a victim to typhus fever, in Florence, at the early age of thirty-eight. America had to lament one of her most widely known painters, Emanuel Leutze, who died of congestion of the brain, at Washington, on the 20th, aged fifty-two. He was of German extraction, and became a pupil of the famous painter Lessing, of Dusseldorf. Leutze produced a series of pictures from English and American history, which are remarkable for their character, spirit, and fidelity. Among the best of his earlier works may be mentioned "The Court of Queen Elizabeth;" "Henry VIII. and Anne Boleyn;" "Cromwell and his Daughter;" and the "Iconoclast." Of his paintings representing subjects taken from American history, the most important and popular are "Washington at Monmouth," "Washington crossing the Delaware," "Sergeant Jasper," "Washington at Princetown." All these works are widely circulated throughout the United States; and though the last named may be said to be the most popular among art critics, engravings of "Washington crossing the Delaware" can be seen in almost every cottage in that country. At the time of his death Leutze was engaged on a large cartoon representing "Civilization," to be painted in one of the panels of the Senate Chamber at Washington. Our own country lost an unusually large number of distinguished professional men this month. The versatile and accomplished artist, George Housman Thomas, was snatched away suddenly at the age of 44; and George Cattermole, in his 68th year. In the death of Richard Hassall, South Kensington lost one of its chief designers and sculptors, a man of great promise. Another designer and modeller at Kensington, Mr. Gibbons, was accidentally drowned. James Thomas Hixson, the water-colour artist, died of consumption, at the island of Capri, in the Bay of Naples. He had recently been elected an associate of the Institute of Painters in Water-colours, and exhibited four drawings at its last exhibition. Mr. Hixson was only 32. In August Ciceri, the great French scene-painter, passed away full of years and honours. His career was curious. Having begun life as a musician, he used, at fourteen, to play his part on the violin in the "Séraphin" orchestra. Subsequently he took to painting, under one of the architects to the king, and ended in being the most eminent artist in his line. As far back as 1810 Ciceri, by order of King Jerome, restored the great theatre at Cassel, and in 1825 he superintended the coronation festivities of Charles X. The decease, on the 25th of this month, of Charles Elliott, deprived America of her most distinguished portrait-painter. He was the son of an architect, and was born in Scipio, New York, in 1812, where he studied art under the well-known American painter, Trumbull. Also in August died Professor John Millington, an English chemist of reputation, in the United States, aged 89. He was a practical miner, and in early life was associated with Macadam, the celebrated road-maker. George Maccallum, a young Edinburgh sculptor of much promise, pupil of Brodie, R.S.A., and afterwards assistant of Steell, her Majesty's sculptor for Scotland, was cut off suddenly in the beginning of September, in his 27th year. On the 15th, E. H. Wehnert, a clever and popular artist, several of whose works have been engraved, died at Kentish-town, aged 54. He was closely followed by Hippolyte d'Orschwiller, the French painter, about the same age. Next, Antonio Vechte, the *repousseur*, passed away, to the regret of all who are interested in art-workmanship. This accomplished craftsman and able designer was born in France in 1799, and lived in this country for a number of years. His works now enjoy a European reputation; but few men have made a nobler struggle for recognition than Vechte. On the 27th of October, the death was announced of Herr Edward Hildebrandt, a distinguished landscape-painter of Berlin.

Other names besides those we have enumerated deserve record—of individuals who have departed during the year, less distinguished or less known, perhaps, than the above, but whose useful labours in the cause of science, art, and architecture are nevertheless not without interest to our readers. Among architects we have lost George Guillaume, of Southampton, who died on the 15th of February. He enjoyed a high provincial reputation for nearly thirty years, and, in addition to numerous works in ecclesiastical and domestic architecture which he designed and executed, Mr. Guillaume was an able writer on architectural subjects, and a man of no mean powers as a mechanical inventor. On the 23rd of May Mr. Pritchett, architect, York, closed a useful life at the venerable age of fourscore years, having been in actual practice on his own account for the long period of 55 years. In the end of July William Clephane, architect, of Stockton, died; and about the same date, after a long and painful illness, as our readers know, George Rowden Brunell, in his 54th year. The other day we announced the death of John Burlinson, who for a quarter of a century was the confidential and valued assistant of Mr. G. Gilbert Scott. Several able engineers have also disappeared from our midst, including Thomas Duncan, the water engineer to the Liverpool Corporation. His death happened also last month. The Society of Arts has lost one of its oldest and most valued members in Harry Chester, who will be missed from the councils of that and various kindred associations. Nor ought we to omit the name of Chauncey Hare Townshend, who departed at a good old age in February. He was an elegant poet, an accomplished musician, and a skilful painter. But he will be chiefly remembered as a collector of works of art, of rare judgment and exquisite taste, and for having with equally rare liberality bequeathed his venerable collection to the South Kensington Museum for the benefit of the public.

Since this notice was written Mr. George Lowe, the well-known gas engineer; Mr. Edward Goodall, engraver and father of painters; and Mr. Abraham Cooper have left this life. Abraham Cooper died at Greenwich on Christmas-eve, aged 81. This notable painter was born, we believe, in Red Lion-street, Holborn, and sprung from a very humble position. His first exhibited picture, "Tam O'Shanter," sent to the British Institution well nigh sixty years ago, was purchased by the Duke of Marlborough. Mr. Cooper has been ever since a constant exhibitor both at the Royal Academy and the British Institution. His works consequently are very numerous, and he painted too long for his fame. Among the principal are "Blucher at the Battle of Ligny," "Cromwell at Marston Moor," "The Death of Harold," "The Battle of

Assaye," "The Battle of Shrewsbury," "The Battle of Waterloo." He was elected an associate of the Academy in 1817, and R.A. in 1820.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE HOLY LAND.

THE fortnightly general meeting of the above Institute took place on Monday evening, the 4th inst., Mr. James Edmeston in the chair. Mr. John Clarkson, of 36, Great Ormond-street, and Mr. Thomas C. Ebdy, of Durham, were balloted for and elected associates of the Institute. The decease, on the 16th of October, at Hong Kong, of Mr. John Clark (member), formerly of 2, Great James-street, Bedford-row, was announced by the chairman.

A communication from Professor Donaldson, giving a hasty sketch of that gentleman's visit to the Holy Land, with passing remarks upon the intermediate places visited, by the Professor and his party, was read. It was in the form of a letter addressed to Mr. C. C. Nelson, and was couched in the characteristic graphic style of the writer. Speaking of his visit to the Suez Canal, Professor Donaldson states—"The southern portion between Ishmaella and Suez is excavated to half its depth only, and one harbour at one mouth has to be completed. It is a marvellous realization of a prodigious project, and does justice to the daring of its projectors. As you steam along its channel 300 feet wide, with sufficient depth to receive the largest merchant vessel, you cannot but feel impressed with the extent of this great sea-channel. But its maintenance [continued the writer] will be thegreatest difficulty of all: to preserve the depth from being choked up by the sands, whether along the canal itself or in the port, is even now a matter of anxiety and care. While we were upon the spot a French vessel of war was expected, and they were employing many gigantic dredgers to secure a channel. In the basin of the harbour there were several vessels of considerable size. The piers to enclose the harbour of Port Said are constructed of enormous blocks of concrete, a couple of mètres or more in each direction thrown over and left to take their places *pêle-mêle*; but it has been found that this will not do, for the waves force themselves between the crevices and interstices with such force as to move them, and they are now considering how to produce more cohesion between the blocks than by their mere weight; and if they are obliged to adopt the combination of the masses by regular construction, as in our Dover pier, it will cause an enormous expense, for the dykes or piers extend out miles into the Mediterranean." From Port Said the party proceeded to Jaffa, in an Egyptian coaster, the journey thence to Palestine being continued on horseback. Jerusalem was reached in a day and a half. "Jerusalem itself," writes Professor Donaldson, "caused me the greatest disappointment and pain. It is a vast store for religious traffic, occupied by religionists of every shade of Christian doctrine, each scrambling and fighting for the pre-eminence. . . . . Each sect seeks to appropriate as specially its own this or that spot as the true site of each sad event in our Saviour's life. The Holy Sepulchre could never have been where its representation is now located; but Latin and Greek, Armenian and Copt, fight and scramble on the soil, and the Turk, as guardian of the sacred spot, as it is supposed to be, is obliged with bastinadoes to keep the furious superstitious antagonists in order." The sanitary condition of the city was described as the worst possible; for it is without sewers, and is supplied with water from cisterns which receive the surface waters, too often impregnated with cesspools and drains. The architectural features are few and difficult to trace. The structure most deserving of notice is the new dome to the Holy Sepulchre, nearly completed, the entrance being decorated with paintings which were described as being of too pale a tone to be effective.

The Holy Sepulchre itself was mentioned as a most dramatic assemblage of churches, chapels, oratories, and sanctuaries; some on the general level, others going up, several going down into the rocky caverns, and with the ceremonies of the various religionists carried on at the same time the mind became bewildered, "and one wondered whether this could be a true temple for the worship of the living God, or a very Babel or House of Baal for the sacrifices of superstition." Jericho, Bethlehem, and Samaria were in their turn visited. The main tour in the Holy Land occupying the party three weeks. Hardly any traces of Jewish buildings remain, but there are some noble ruins of the times of the Herods and the Romans. Two days' ride from Cæsarea Philippi brought the party to Damascus, "one of the world's Paradises of the Turk and Moslem." Thence a portion of the party visited Baalbek, and after an examination of the stupendous ruins there, were joined by their friends, and proceeded thence to Athens. The Professor is now on his way home, and will, no doubt, on a future occasion communicate to the Institute an account of his subsequent trip.

Professor Kerr took occasion to call attention to the subject of the New Building Act about to be brought before Parliament, and expressed a hope that before any decided step was taken on behalf of the Institute on so important a measure, a general meeting would be convened by the council.

Mr. Seddon said the subject had been under the notice of the Professional Practices Committee, and a series of notes upon the Bill had been drawn up by Mr. Digby Wyatt, which had been referred to a special committee. The last action taken in the matter had been to request Mr. Chas. Barry and Mr. Marrable to confer with Mr. Tite, the president of the Institute, who had charge of the Bill in Parliament with respect to several of its more important provisions.

The paper appointed for the evening was "A Descriptive Sketch of the New House at Humewood, county Wicklow," by Mr. White. Illustrations of this structure, with a description, having appeared in the last volume of the *Builder*, it is unnecessary to repeat the particulars which constituted the paper laid before the Institute.

A brief discussion followed the reading of the paper, in the course of which additional particulars were furnished by the author with regard to the construction of the flat of the roof, being in this instance of cement and tile, in contradistinction to lead—an experiment which the architect believed would be successful in all respects. The arrangement of the gutters, which was of a peculiar and novel character, was also the subject of conversation.

In reply to inquiries, Mr. White said he had omitted to give the details of the construction of the central flat between the two main roofs. This, he said, was effected by a course, first of all, of Staffordshire red tiles laid upon the joists, with a fall sufficient to carry off the water. Then followed a course of slates laid dry; upon these was a layer of cement, and upon that a course of plain tiles, likewise jointed in cement, so that there were three courses of tiles and one course of slate, with a body of cement between, which, in his opinion, formed an excellent and permanent flat, more durable than lead; the objection to the latter material being the frequent repairs required. The surface of the flat was of tiles, and he considered the cost of that mode of construction was not much beyond that of lead. The total cost of the building was 15,000*l.*, including the stables, &c. He added, that the joinery work was undertaken by an English contractor, who had sawing and planing mills in this country, and the work was sent out ready to be fitted together on the spot.

LEEDS.

Sanitary Progress.—An increasing death-rate has long given rise to a feeling of uneasiness respecting the sanitary condition of Leeds, and the arrangements for preserving the health of the town. Many improvements, involving a heavy expenditure, have been carried out, and others equally costly are projected with the view of removing the causes to which epidemic disease and premature death may be traced. Confined localities have been opened up, and stagnant atmospheres rendered comparatively harmless by admixture with purer air; foul privies and pestiferous cesspools have been swept away; unhealthy dwellings have been either closed or brought to a better condition; the habits of negligent and slatternly householders have been corrected as far as is possible; and the sanitary state of the town has been further improved by scavenging and a main drainage, so far as the latter has been carried out. But while much has been done to promote the public health, there are still many adverse influences at work. Not the least potent of these are the back-to-back houses which constitute so marked a feature in the domestic architecture of Leeds; all with cellar kitchens, some so much below the level of the street as to render them as unfit for human habitation as diminished light, damp and steaming walls, and imperfectly-trapped sinks can make them; while the peculiar plan of such dwellings renders a thorough ventilation of the sleeping-apartments a problem which the opening of windows seldom succeeds in solving. The operations of speculative builders also have not been favourable to the hygienic condition of Leeds. Streets have been run up, and footpaths and roadways left in the state in which the carriage of building materials, the digging of foundations, and the laying of gas and water pipes have left them. Happily the disgusting aspect of the becks is being rapidly changed. The becks which have already been improved are Dow-beck and Hol-beck, the works connected with the former having been completed, while the greater portion of Hol-beck has been finished, and additional powers are sought by the corporation in the Improvement Act Amendment Bill, of which notice has been given, to enable the becks committee to undertake the remainder. All that has been done up to the present time in reference to Sheepscar-beck has been the removal of a large quantity of the mud which had accumulated in its bed; but it is expected that its turn for improvement will come before long. The excellent effect which the works have had, so far as they have proceeded, fully justify the anxiety of the becks committee to push them forward; and, in what has been done, their views have been ably carried out by Mr. A. M. Fowler, the borough surveyor. The first improvement contract which the corporation intend to let in the spring, embraces that portion of Sheepscar-beck or Lady-beck extending from Nether Mills, on the river Aire, to Broadhead's Mill, in Mabgate; the next contract will take in the part extending from the last-mentioned mill to Woodhouse Carr. It is not proposed to cover over the large streams, such as Sheepscar-beck and Hol-beck. The watershed of Sheepscar-beck is upwards of 12,000 acres.

The new Hotel.—The new Central Station Hotel, mentioned by us some time ago, has during the past eighteen months sprung up in one of the busiest thoroughfares of the town. It is being erected by the Great Northern Railway Company. The directors invited a limited competition, and the plans of Messrs. M. E. Hadfield & Son, of Sheffield, being chosen, the necessary drawings and contracts were prepared. It was at first intended to erect the hotel upon the precise spot of the old Wellington Inn, but the great disadvantage of having to cross Aire-street suggested the possibility of removing that street, and so placing the hotel in direct communication with the station. The result shows the change to have been most desirable, and the hotel, as it now stands, may be said to present four fronts, with ample streets for light and air on all sides, whilst the broad and spacious railway corridor will afford a passage in all weather from the carriages to the interior of the hotel. The style of architecture chosen may be described as "Romanesque," studied from the domestic buildings of Germany and Lombardy. The general outline of the exterior is well-defined by four pavilion roofs of high pitch which spring from the general cornice, thus surmounting the formidable difficulty of the square block which the site imposes with reference to architectural effect. The building occupies a site of about 160 ft. by 90 ft., the principal, or entrance, front being towards Wellington-street, but the façade opposite the station, being of greater extent, presents a more striking elevation. The hotel is very nearly completed, ready to receive its decorations and furniture, which it is proposed shall accord with the style adopted for the architectural details of the building, colour being freely used wherever it can be made useful in heightening the effect of the interior. The contractors are Messrs. Shaftoe & Barry, of York, and Mr. Daniel Fulcher has acted as clerk of works. The stone carving of the exterior, with exceptions, is by Mr. Earp, of London, and has been executed from the architects' sketches and direction. The tile pavements are by Messrs. Maw, of Broseley. The marble chimney-pieces and stove-grates have been supplied by Messrs. Dennis Lee & Welsh, of Leeds; and the metal balconettes and staircase balustrade by Messrs. Longden, of Sheffield. The hot and cold water service, hoist, heating, bells, gas-fitting, kitchen range and cooking houses, &c.,

have been fitted up by Messrs. J. & C. May, of London; and the Vieille Montagne zincwork of the roofs has been executed by Mr. Fox, of Limehouse. Messrs. Garlick & Son, of Leeds, have executed the plastering.

WORKS OF UNKNOWN ARTISTS.

THE FAIRFORD GLASS.

IN commenting on some similarities between the Dantzic picture and the Fairford west window in the *Standard* of October 8th, I remarked that the picture was by H. Van der Goes. In your journal, on the other hand, Mr. Weale's authority was quoted in favour of Dierich Stuerbouts. This led me to ask Mr. Weale if he had made any more recent discoveries than those with which I was acquainted, and he tells me that the story of his having discovered the Dantzic picture to be by "Boots" is a canard invented in Berlin about April 1st, and thence copied into some English papers. This will account for the error. The coats of arms on the back of the picture and other evidences (which, I believe, Mr. Fuller Russell is about to publish) make the testimony in favour of Van der Goes as the artist very strong. Enough, I think, has been said and written against the attribution to Dürer of the Fairford windows; and it is very palpable to any person conversant with the art of the fifteenth century, especially in glass, that he could neither have painted nor designed the whole of them, if he did any.

After some months of research in various ways for a clue to the artist, I was looking again over the Brussels gallery in company with Mr. Weale, and came across a picture which *primâ facie* so resembled the Fairford work that I was arrested by it. On examination, I found much corroboration of the identity between the artist of the east windows of Fairford and the picture before me. The picture is numbered eighty-four in the catalogue, and is a representation of the Crucifixion; with other scenes in the background. I give some of the most evident points of similarity:—

First.—It has the A of the Fairford work, on a blue banner, on the dexter side (not the A of Albert Durer, or Aldegraver, as given in the article in the *Gentleman's Magazine* by Mr. Tom Taylor).
Secondly.—Our Lord on the Cross has the same style of floriated nimbus.
Thirdly.—It has the good and bad angels over the thieves.
Fourthly.—The planed and rough wood crosses.
Fifthly.—Arrangement of hair on angels' heads, plain to the ears and then commencing to curl, and the manner of their draperies nearly identical.
Sixthly.—The face and figure of the Blessed Virgin with her costume very similar in character, &c.
Seventhly.—Armour and costume alike.
Eighthly.—The same sentiment, tone of colour, and style of composition mark both works.

The artist seems to be amongst the unknown, or rather as yet no name has been identified with the work, either by the connoisseurs of Germany or Belgium. At one time the picture was attributed to Aldegraver, on account of its signature. This every critic now acknowledges to be a mistake, and I have some sketches from glass designed by that artist, which bear no resemblance whatever to the picture. It was once also, I am told, attributed to Durer. This was found to be as untenable as his claim to the Fairford work, and affords a capital parallel; in fact, if Mr. Holt can identify the picture as Durer's, to my ideas he will have gone a great way to prove the glass also to be his, and *vice versa*. It was in the collection of M. Weyer, of Cologne, and sold at his sale to the Brussels Gallery at the same time as the beautiful Memling was purchased for our own National Gallery. There is a long notice and description of it in the account of Mr. Weyer's collection, a work useful to every picture collector.* I translate the following portion for the benefit of your readers:—

"This composition is very remarkable. The groups, especially the cavaliers to the right of the Cross, and the Holy Women, are disposed with great ability, and show the original genius of the author. If the drawing falls short in its anatomical proportions (the heads being large and the arms short), the draperies and details leave nothing to be desired. The colour has a marvellous brilliancy, dazzling in its splendour, and the deep sentiment that reigns throughout makes this picture worthy to occupy a high rank amongst the productions of the school of the 'Bas Rhin.' At the commencement of the present century it ornamented the church of Richterich, near Aix la Chapelle, when from ignorance of its value it was sold to General Ruhl von Lillenstern, who left it to the Minister von Schlenitz, from whom M. Weyer purchased it."

Mr. Weale, at Mr. Weyer's sale, tried to persuade Sir Charles Eastlake to purchase it for our gallery. Sir Charles, however, did not think it the class of picture desirable. And it was sold to the Brussels Gallery for the trifling sum of 185*l*. In a letter received but a few days since from Mr. Weale, to whom I had shown some drawings of the Fairford work, occurs the following remark:—

"Since I saw you I have seen the carved reredos of Vernay now at Tongres: the canopies are of a similar design to those at Fairford. I have no doubt that the artists who executed the Fairford work [Qy. some of it], belong to that part of the Netherlands. Richterich is between Aix la Chapelle and Hertzogenrath."

These contributions will be, I hope, useful to those who, like myself, take an interest in the works of unknown artists, and their name is legion, for the works identified with their authors bear a small proportion to those not recognized or of doubtful attribution.*

N. H. J. WESTLAKE.

THE STAIRCASE IN HAMILTON PALACE.

SIR,—Allow me to correct your correspondent "J. S. R.," in some of his statements about the staircase in Hamilton Palace, "built entirely of black marble."† He says that this "is not the principal one in the palace, and that it was erected by the late duke." It was erected by the late duke's father, viz., Alexander, the 10th Duke of Hamilton, who made the latest additions to it, and it is the principal staircase in the palace; but to one not acquainted with, and getting perhaps a hurried look through, the house, such a mistake might easily arise.

The older portion of the palace forms three sides of a quadrangle, the entrance-hall being on the ground-floor, with the entrance-door in the centre of the inner face, facing the east. On this floor, also, were the principal rooms. The addition faces the west, and this became and is now the main front of the palace. In the centre of this front, and on the first-floor level, is the new entrance-hall, approached through a portico on the same level, and reached by a double flight of steps, somewhat like Blenheim. All the state-rooms are on this level, alongside the new entrance-hall to the north, and its use is this. Should visitors be set down at the western entrance, instead of ascending by exposed outside stairs leading to the portico, in wet weather, they go inside at once, to a lower hall, communicating with the old one on the same level; and if arriving by the old entrance, the black marble stair becomes the main approach to the principal floor, the steps being only carried up to this level.

The stair*case*, instead of being of black marble, is lined with a warm-tinted and beautifully veined freestone; so also is the new entrance-hall. The latter magnificent apartment, the floor of which is laid with coloured marbles, is the whole height of the principal and bed-room floors; while the staircase has the additional height of the ground-floor.

The masonry of these two apartments is of the most exquisite kind. Not only the faces of the stones, but the top and bottom beds and end-joints also were polished; and instead of this being done in the usual way by rubbing them with the polisher, the parts to be polished were laid on the polisher, and in this way rubbed until they were perfectly true.

The steps of this stair-landing, balustrade, and skirtings, are of polished black marble, as also are the jambs of the doors at either end of the landing, the one leading into the new entrance-hall, the other into the state bed-rooms. The landing is supported by two Atlantidæ, I forget whether of bronze or marble. I think, speaking from recollection, that the steps at the centre flight are 8 ft. long, and the return ones 6 ft. The steps are moulded on the back and all polished. The balusters are carved, and stand on a moulded base, raking with the steps.

With regard to the cost of this staircase and stair, I think no one could possibly give a guess. The freestone was from one of the duke's own quarries. The workmen were in his own employ and paid by the day. The workmanship had to be of the best, and the men were allowed their own time. As the lower portion of the walls of the staircase is champhered rustic work, and every arris had to be perfectly true, no idea can be formed of the cost of this part of the work. The steps, plats, and balusters were contract-work, and I think were executed in London. I cannot believe in a single baluster costing 27*l*. for the polishing; but the entire cost of one might reach that sum or even more.

To satisfy your correspondent "K. K." as to the date of erection, I may state that I was engaged at intervals at the drawings for this staircase and other parts of the house, while in the office of the late David Hamilton, of Glasgow, who was architect to the duke (see his obituary notice in the *Builder*, vol. i., p. 537) from 1837 till his death in the end of 1843, at which time it was not quite finished.

I suspect "J. S. R." has mistaken the stair known as the duchess's (also a very fine one), for the principal stair. It is so to the bed-room floor, but it is not the principal stair in the palace.

JOHN BAIRD.

ST. PANCRAS INFIRMARY.

THIS Infirmary is now being erected at Highgate on a site containing about 3¾ acres of land. On the highest or north side of the ground is placed the central or administrative block, extending from north to south. In the front portion are placed the porters' rooms, and immediately joining them are the male and female receiving-rooms, with water-closet and bath in each. Right and left of these are the dwellings of the resident surgeon and assistant surgeon, and matron, with bed-rooms, &c., in the floor above. On the other side are the Board and waiting rooms, with lavatory attached. The matron's linen-room, &c., are on this side also.

The centre is occupied, as will be seen on reference to the plan, by the store department, with steward's office overlooking. By the natural fall of the ground ample space is obtained for wine, beer, and other cellars beneath without excavation. The kitchen, scullery, and larders are adjoining, and occupy the centre of the entire range of buildings.

On either side of the corridors are the steward and male servants' mess-rooms, and the matron's and female servants' mess-rooms. The steward has a separate and a distinct house on the right of the main building, overlooking the entrance to the stores. The dispensary and operating-rooms are situated on the side of the intersecting corridor, between the male and female block; on the other side of the door dividing the cross corridor is the boiler-house, with stairs to coal-store below. A patients' clothes-store is close at hand here, entered from the covered way outside the building, which leads to foul wards.

The laundry is approached by steps necessitated by the fall of the ground; these steps are divided in the middle from the male and female sides. Dry-houses for drying the clothes are provided for, and in addition a spacious drying-ground adjoins the laundry. All these buildings are lofty, and ventilated by top draughts. Beyond this laundry, and entirely detached from the rest, is a wash-house for foul linen, with fumigating-room, under which is a large tank for storage of rain water. W.C.s and urinals in convenient positions are placed throughout the buildings.

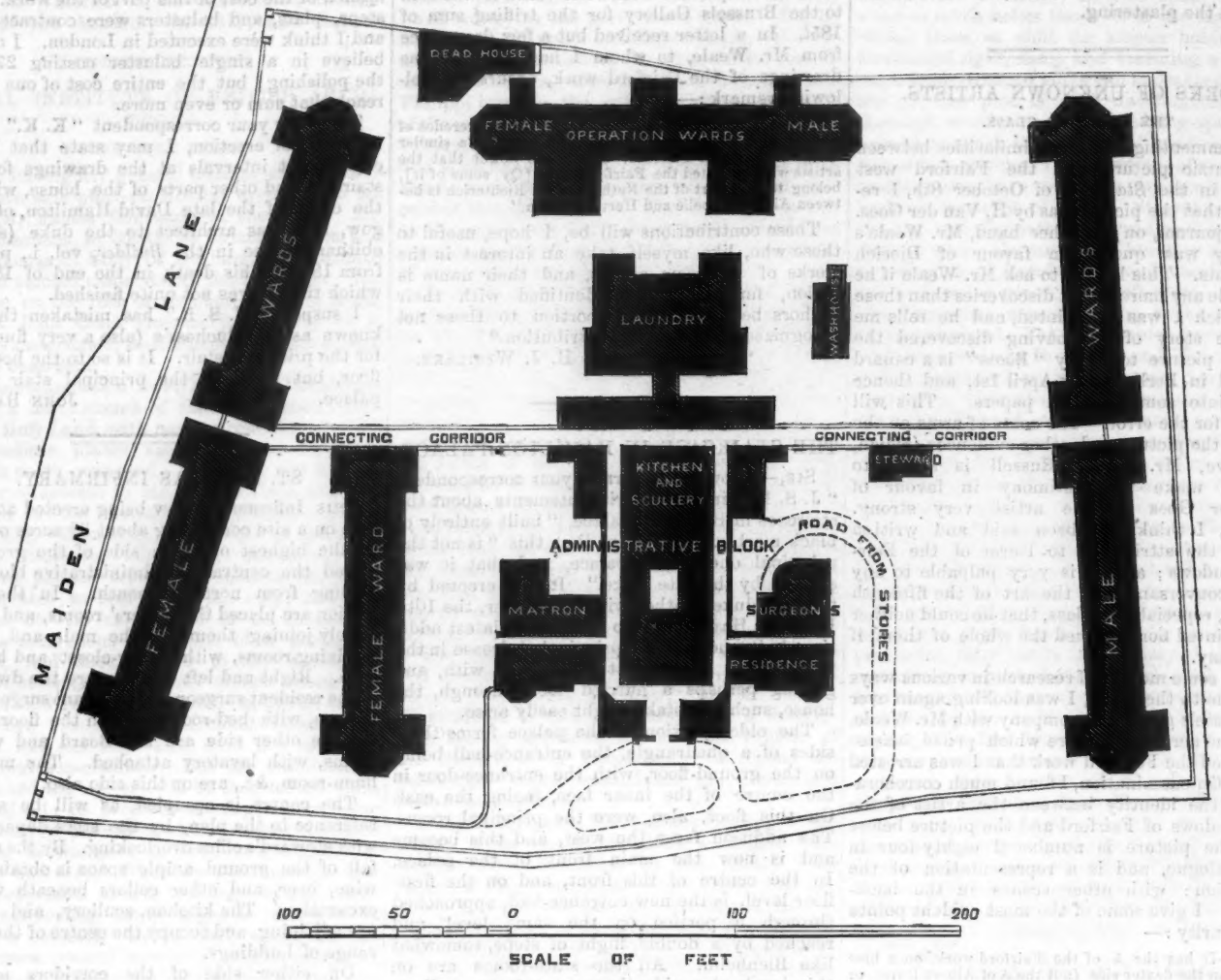
The patients' blocks are placed on either side of the main block—the three blocks for females on the left, the two for males on the right. Accommodation for 256 females is provided in two wards of three stories each and one of two only—32 beds in each ward. For male patients there is one block of three floors and one of two, providing for 160 patients. The wards are 22 ft. wide and 13 ft. 6 in. clear height, and are lighted by windows on either side, reaching within a foot of the ceiling; the upper part of the window is made to fall open for ventilation. Open fireplaces are used for warming, the air before passing into the wards being heated by circulation round the stoves. Each ward has a staircase, with nurses' room overlooking ward and ward scullery, sink, and lift from corridors below for linen, food, &c.; a linen-store and nurses' W.C. at the one end of it, and shutes and dust for foul linen. At the other, on one side are a bath-room and lavatory for patients, and W.C.s in the other, thoroughly ventilated by through draughts. At the extreme end is a day-room for the use of convalescent patients, with easy access from ward.

* Its title is, "Notice sur la Collection de Tableaux anciens faisant partie de la Galerie de Mr. J. P. Weyer," &c. &c. Par W. H. J. Weale. Bruges. London; Barthes & Lowell.

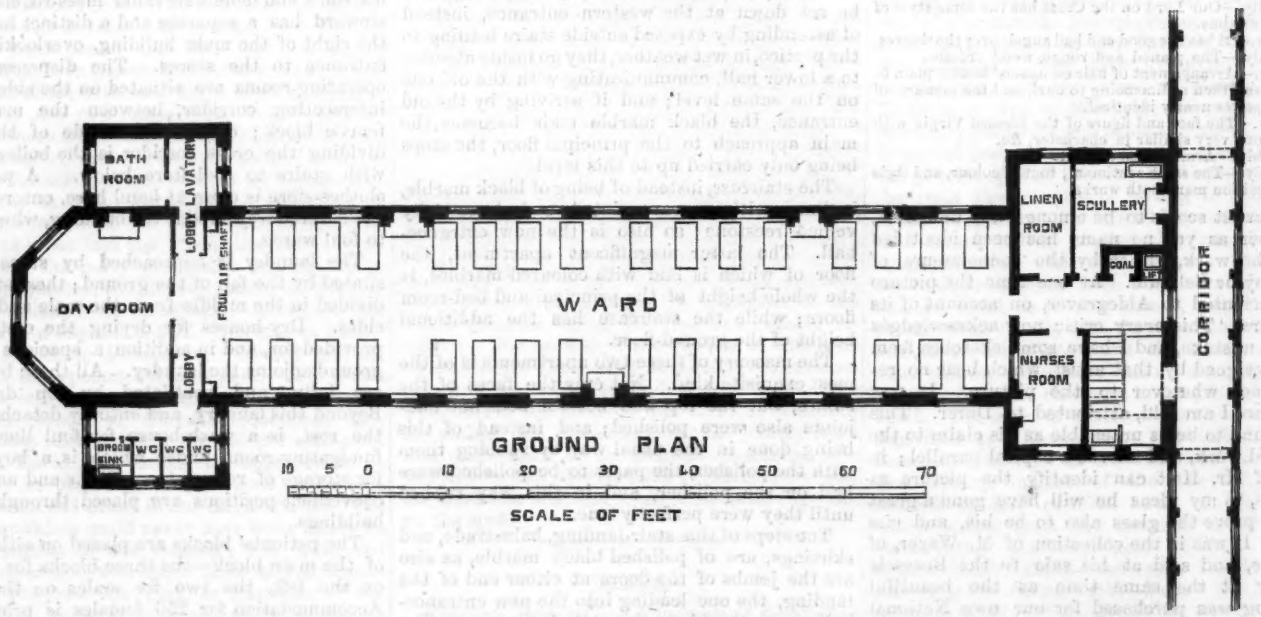
* As respects the Fairford windows specially we have received a number of letters, including one from Mr. Martin Underwood (with various drawings, both from Fairford and Nuremberg), and a further communication from Mr. J. G. Waller. We must, however, wait for a fitting opportunity to bring the matter forward again with the prospect of a useful result.—ED.

† Vol. xxvi., p. 948.

ST. PANCRAS INFIRMARY, HIGHGATE.



Block Plan of the whole Establishment.



Plan of One of the Wards.

The foul wards are entirely isolated, and contain accommodation for 54 patients of each sex, or 108 in all. They have lavatories, W.C.s, nurses' rooms, and scullieries for each particular class.

The dead-house is at the south-east corner of the ground, with the necessary *post-mortem* rooms, &c., and removals can be made without the necessity of going near the main buildings.

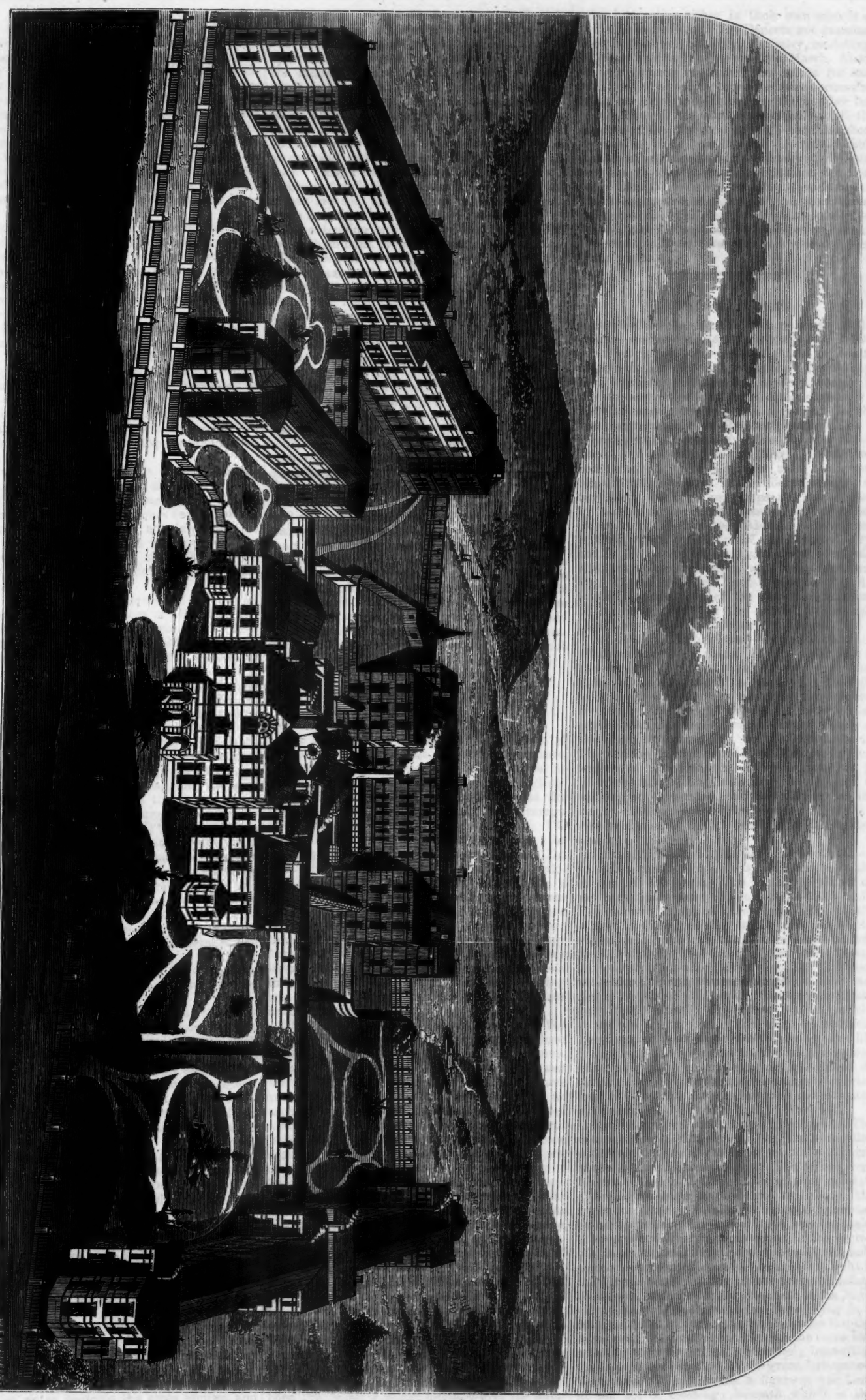
The staff of nurses will, we understand, be provided by the Nightingale Training Institution.

This infirmary is being erected for the St. Pancras Board of Guardians, of which Mr. W. H. Wyatt is the chairman, from the designs of Messrs. John Giles & Biven. The contractor is Mr. W. Henshaw, whose contract amounts to 36,000*l*. The clerk of works is Mr. Culverhouse.

THE STREET SIGNALS IN WESTMINSTER.

THE police report favourably of the working of the Semaphore signal pillar, recently erected at the corner of New Palace-yard, Westminster. The pillar has had the misfortune to sustain two accidents from gas explosions, for which its designers, or makers, are in no way chargeable. It appears that some of the mains near the pillar are in such a state, that the gas escapes freely from them, to saturate the earth, or escape how it may. A quantity of this leaked gas found its way into the hollow signal pillar, and caused a violent explosion on Saturday night, when the constable opened the small door with the intention of turning off the gas from the signal lights. The policeman had not any light, but the gas probably ignited on the admission of the air, the lights never being quite extinguished. Pending inspection and repair of the mains, an attempt is made to protect the signal pillar by loosening the road round its base, that the gas leakage may be discharged into the atmosphere, and not allowed to accumulate in the cast-iron signal pillar, which is nearly air-tight.

A Statue of Grattan.—A movement is about to be set on foot for the erection of a statue in College-green, Dublin, to the memory of the illustrious Henry Grattan. The site will be opposite the building which was the scene of the orator's triumphs, and in the immediate vicinity of Foley's statues of Burke and Goldsmith, in front of "Old Trinity."



ST. PANCRAS INFIRMARY, HIGHGATE.—MESSRS. JOHN GILES & BIVEN, ARCHITECTS.

ROAD MAKING.

SIR,—Notwithstanding the attempt at logic and argument of "Pro," I am still of opinion that a strong foundation of concrete, &c., (which he admits in places) is a *sine quâ non* in making or renovating a road; and I think instead of carrying out the plan as advocated, of sprinkling over the surface just a stone thick, it would be better, in most cases, and great economy, to completely renew the road-surface, put in a good foundation, and cover the surface with the best and strongest stone that can be procured, properly prepared, and carefully laid on, and we should hear little of bad roads.

I have known roads so constructed of a pitched foundation covered with a 6-in. coat of Hartshill stone, last for six years without applying fresh material, under the heaviest traffic of any road out of London, and the broken stone that was prepared for its renewal had become covered over with grass in the depôts. That shows the advantage of a well-made road in the first instance.

If "Pro" wishes to know the expense of repairing roads in the neighbourhood of London, that might be obtained from the Secretary of State, who receives the annual returns of expenditure, &c., on every trust, and these are fully and fairly made out, and are trustworthy data for those who are anxious to acquire information on the subject.

"Pro," who appears to be a new shining light, seems to think that all that has occurred before his advent is chaos and confusion worse confounded; but he labours under a slight mistake. Certainly we are not improving so much as we ought from the precepts and examples of our predecessors, simply because we are too prone to endeavour to establish a standard of our own.

For instance, "Pro" advocates the use of hot coal-tar, &c., as a panacea of all the ills applied to the loose coating of stone spread over the surface by means of an old water-cart, constructed on low wheels, and afterwards rolled.

The application of gas-tar and pitch to road surfaces "Pro" must understand is not new. In 1842 I used it at Nottingham, and it is used in many places; but it is not applied in the manner proposed: indeed, it would not be practicable. The stones are first properly broken, and the tar and pitch are spread over, and mixed amongst them in the heap, and the heap is turned over and over, so that every stone becomes more or less covered with the tar and pitch. The material is then applied to the road surfaces, and consolidated in the usual manner. But I have found in practice that, in the first place, it is not cheap, being more expensive than "binding;" it does not add at all to the durability of the roadway, because in the summer months the heat acts injuriously upon it, softens it, and produces friction and abrasion amongst the metal of the roadway, and forms, in addition, a very soft, elastic, and yielding surface for the draught of carriages, and therefore adds seriously to the force of traction.

As to moisture or rain penetrating the crust of a well-constructed roadway, it is not the fact (except when it is only a stone thick): with proper curvature the rain runs off. I have broken up old roadways in large blocks, thoroughly consolidated and cemented together, that were difficult to separate, and moisture could not penetrate, except slightly at the surface; so that the argument about moisture percolating through falls to the ground.

"Pro" condemns my 12 in. of material put on in one coat, and yet in another place he recommends slag or cinder for a foundation, 6 in. or 8 in. thick (just as I applied the 12 in.); but this thickness is insufficient for heavy traffic, even if protected with the *heavy* coat of 2 in. as a top covering!

If cinders are not to be had, he suggests 3-in. stones, 6 in. or 8 in. deep, covered with the aforesaid coat of 2 in.! These will not act as proposed, as they would inevitably work up to the surface, and form a rough road, and would soon require lifting to make a smooth surface. As to my remarks about lifting, "Pro" misquotes me. If an old roadway had rough stones in it many inches deep, I should just lift or scarify the surface, without disturbing the foundation, so as to improve the cross section, and pick out the large stones; then I should break and add to them additional metal, so as to strengthen the surface, and not lift and take out the rough stones, break and apply them to another part, as is sometimes the practice.

I have lately had several opportunities of examining the street surfaces of some parts of the metropolis, and I must say I do not find much improvement in the mode of repairing them. The Poultry, in which so many experiments have been made, is still far from being a perfect street surface. The cross section is too flat and defective; it is sunk in holes in places where mud and water accumulate in wet weather. This, I believe, arises originally from a defective foundation, and the imperfect way the stones are set, and perhaps the quality of the stone may have something to do with it.

In extending my observations westward I found them most properly breaking up the Macadam road at Charing-cross, and substituting for it a pavement.

They were using a foundation prepared of concrete, and upon that they were laying sets of apparently good depth and suitable thickness; but I do not quite approve of the plan adopted, nor do I believe it is one calculated to make a strong and durable roadway.

The concrete did not appear of sufficient thickness for such a thoroughfare of heavy traffic, and the ballast of which it was composed was too fine, as coarser ballast would make a stronger and more durable concrete for such a purpose.

The sets are also placed in transverse rows, close together, and the joints filled in with fine concrete in the form of grout; and this I consider a defect in the mode of paving, as I believe an open transverse joist of 1 in. or 1½ in. wide, well and solidly crammed full of gravel or ballast, would form as good a surface, and at the same time afford a better foothold for horses.

I observed in many cases where the streets are paved with the narrow sets, that horses are continually slipping and falling, and I think this may be obviated to a considerable extent by the open joint suggested. I do not think it would at all deteriorate from the strength and durability of the roadway, while it would add much to the safety of the traffic.

B. BAYLIS.

SCHOOLS OF ART.

The Bath School.—The annual distribution of the prizes took place at the school premises, 33, Paragon. The mayor presided. He said he hoped the school would be self-supporting. During last year 102 pupils had attended the mechanics' and artisans' class, the average attendance for evenings being forty-five; 133 pupils had attended the morning classes, the average attendance being sixty-two. Dr. Puckett (the head-master, whom he eulogised) had also succeeded in establishing a sketching class, which numbered twenty-three pupils. Then, in addition, 2,000 of the pupils belonging to the poor schools of the city were taught the elements of drawing, and this they hoped to continue. It was an almost incredibly large number, and they could not expect them to be very elaborately taught; but the teaching was sufficient to enable them to obtain prizes from Government.

The Penzance School.—The prizes awarded the pupils of this school by Government have been handed to them by the Mayor of Penzance. Many of the visitors, who filled the school, saw for the first time the improvements which have recently been effected—the substitution of an archway for the north wall, and the addition of a second room 18 ft. long. By this arrangement better light, as well as more space, has been secured. A large number of ladies were present. The head-master is Mr. Geoffroi, who has conducted the school since its commencement, sixteen years since, when it began with twenty artizans. There are now 900. The school is considered to be in a successful state, and it is now a school of science as well as art.

The Cork School.—The annual distribution of prizes to the students of this school took place in the Athenæum. The mayor presided, and there was a fair attendance of spectators, but not at all what might have been expected to be present on such an occasion. Mr. Brennan, the master of the school, read the committee's report, which stated that, during the past year, the total number of persons receiving instruction in the Central School had been 187, being a slight increase over the number attending last year, in addition to which the children from the National Schools, St. Stephen's Bluecoat School, &c., continued to receive instruction either in their own schools or at the School of Art. The Department examinations in freehand drawing, geometry, modelling, &c., were held early in the month of March. About fifty-six persons presented themselves for examination, of whom twenty-nine were successful, being an increase of nine over the number last year. Two of the students passed in all the subjects of the "second grade," entitling them to receive their certificates. A considerable number of advanced and elementary works were sent up to the annual competition in London. The Department reported favourably on the character and rendering of the works sent, and the works of thirteen students were selected for national competition; two received "honourable mention," and three students received their grade prizes.

STAINED GLASS.

Batley Church.—To the east window of the chancel we have already slightly alluded. In the principal part of the centre light is a life-size representation of our Lord as the "Good Shepherd," leading into the fold a stray sheep. In the upper part of the same compartment is a jewelled mosaic cross, within a vesica. In the two compartments on the dexter side of this is a large group, representing the Nativity of our Lord, and the visit of the Magi. In the two compartments on the sinister side, the group represented is that of little children brought to our Lord. Both these groups are surmounted by mosaic shrine work, founded upon ancient examples in Westminster Abbey. The tracery is filled with a treatment of our Lord in Glory, and St. Peter and St. Paul, and a host of angels, with musical instruments, and palm branches, &c. The window has been presented by Mr. Sheard, the architect of the church, in memory of his daughter; and the artists, as formerly noted, were Messrs. O'Conner, of London.

St. Mary's, Nottingham.—Two more stained windows have been placed in the south side of the chancel of this church. There is a similarity in the design of the windows. The subjects dealt with by the artist in the window erected by the Wright family are chiefly connected with the earlier events in the history of the Saviour, extending to St. Matthew iv. The window in memory of Sir C. Fellows is illustrative of the first six or seven chapters in Matthew and John, including the miracle of walking on the water, and the driving of the money-changers out of the temple. There is a representation of Christ praying in the wilderness.

Kibworth Church (Market Harborough).—A second memorial window has just been put in the church of Kibworth. The window is placed on the north side near the east end of the aisle. The window contains three openings, and the subject is Christ raising to life the son of the widow of Nain. In the centre light is our Saviour holding the hand of the young man; the widow is standing at the end of the bier, while the Saviour, commanding those who carried it to stand still, said "Young man, I say unto thee, arise." The other figures in the group are the Apostles and other attendants. The canopies and bases are formed of the lily foliage, and the figures of St. Wilfred, the patron saint, and Faith and Hope, are introduced on either side. In the tracery are angels bearing scrolls. The window was designed and executed by Messrs. W. Holland & Son, of Warwick.

St. Michael and All Angels, Braintree.—The east window of this church has just been filled with stained glass at the expense and in memory of the late Mr. Richard Lacy. The artists were Messrs. Clayton & Bell. The window consists of five lights, each divided into two parts; the upper containing a full-length figure surmounted by canopy work; the lower, on a smaller scale, the representation of some scene in the sacred life, in an especial way connected with the holy person represented above. In the first light is the Virgin Mary, holding in her arms the infant Jesus, and bearing the lily; beneath is the Nativity,—Mary, Joseph, and the Babe lying in a manger. Next in order, is St. John the Baptist in raiment of camel's hair, bearing the cross and pointing to a medallion Agnus Dei; beneath is the baptism of our Lord by the great forerunner. The centre light contains a figure of our Lord in the act of blessing; beneath which is the crucifixion, with St. Mary and St. John. The next division contains a representation of St. John, bearing the palm of victory, and a chalice,

whence issues a dragon, in reference to the legend which tells how the apostle was once warned of a poisoned draught by such an occurrence. Beneath is the last supper, our Lord seated with the twelve. St. Peter occupies the next light, bearing the golden key of heaven in his hand, and the scene beneath is that in which the risen Lord appears, bearing the print of the nails. The tracery in the upper part of the window is filled with coloured glass, an angel occupying the centre space.

SCHOOL-BUILDING NEWS.

Whissonsett.—A new school building in connexion with the Church of St. Mary the Virgin, Whissonsett, Norfolk, has just been completed, from the designs of Mr. C. J. Moxon, architect. The main building consists of a school-room 51 ft. by 20 ft., a class-room, communicating with the former by open arches, and separate porches for boys and girls. The roofs are all open-timbered of a very substantial and ornamental character, and the material employed in the building is flint, with red brick dressings. The whole is warmed by a patent Gurney stove, so placed as to serve for school and class-room. The builder was Mr. George Brown, of Whissonsett.

DISSENTING CHURCH-BUILDING NEWS.

Whisendine, Rutland.—A few days since a new Congregational chapel was opened in this village. The building, which is of Gothic character, is constructed of red and white bricks, arranged with stone. It occupies a prominent site in the heart of the village. Mr. J. Berridge is the architect, under whom the works have been carried out by Mr. John Fast, of Melton Mowbray.

Chard.—A new Congregational church has been erected in the High-street of this town. It is Early English, and of parallelogram form, divided, by iron shafts and the construction of the roof, into nave and aisles. There are a tower and lofty stone spire at the south-west angle. The principal entrance is in the centre, and having a traceried window over, filled in with stained glass. The apse at the east end is relieved by diaper work and passages of Scripture. The architect was Mr. Stent, Warminster; and the builders were Messrs. Hawker & Harbour, Chard. The total cost is about 3,000*l.*——On Wednesday last a preparatory Congregational church was opened in the Kent-road. A limited competition resulted in the design of Mr. Stent, of Warminster, being accepted for church, school and class rooms, &c. The schoolroom has been erected and dedicated as a preparatory church during the erection of the other buildings. Mr. A. Smith, of Portsea, is the contractor.

North Shields.—A Scandinavian Lutheran church has been opened here. It is situated in the Borough-road. The edifice is built on an irregular shaped piece of ground a short distance from the New Quay. The congregation will be chiefly composed of sailors. Owing to the peculiarities and the smallness of the site, the west façade of the church is built at an obtuse angle with the adjoining sacristy. The length of the chancel, which occupies the ordinary ecclesiastical position, is much less than would otherwise have been the case; and it was necessary to build a gallery at the west end. The staircase to this gallery is enclosed in the circular turret at the south-west angle of the building, which forms a feature in the external appearance. Two lancet lights, with shafted jambs, and a large sexfoil window complete the west gable. The church is 47 ft. long by 26 ft. wide. The east window is of stained glass: it is of three lancet lights set in polished stonework. In the centre light is a representation of the Crucifixion, with St. John and the Virgin in the side lights. The artists were Messrs. Heaton, Butler, & Bayne, of London. This window is the gift (among other embellishments) of Mr. Borries, the Norwegian and Swedish Vice-Consul, at Newcastle-upon-Tyne. The chancel floor is laid with encaustic tiles. The pulpit is placed in the south-east corner of the nave; and open pews fill the rest of the church. These are all of deal, slightly stained and varnished, and will accommodate 230 persons. The church is heated by means of a Gill stove in the basement. The work has been executed under the direction of the architect, Mr. F. R. N. Haswell, of North Shields. The contractors, with the exception of the iron-founder (Mr. W. H. Walker, of Newcastle), are all Shields men,—viz., Messrs. Campbell, mason; Coulson, joiner; Place, slater; Twizell & Sons, plumbers and gasfitters; and Frazier, painter and glazier.

Otley.—The Baptist chapel, having undergone considerable alteration and renovation, has been reopened. The pulpit, pews, ceiling, and galleries have all been removed, and the building is now fitted up with a platform. The new benches fall back about 4 in., and to each there is a door about 18 in. or 20 in. high to protect the occupants from draught. The renovation has cost about 345*l.* The contractor for the work was Mr. Cunnold, builder, of Ipswich; the plans being those of Mr. Barnes, of the same town, architect.

CHURCH-BUILDING NEWS.

Gamblesby.—The new church here has been opened for divine service. It has been built on a concrete foundation about a yard in depth, and is of red stone. The ground connected with it is enclosed by a wall of the same material. The exterior of the church measures 72 ft. by 22½ ft., and the interior 66 ft. by 18 ft. It contains thirty-two pews, which represent 130 sittings. The pews are all open, and of stained wood. At the west end of the church is a slated spire. The roof of the church is ornamented by a stone ridge. The architect was Mr. Charles J. Ferguson, who, when his design was chosen in 1865, was a pupil of Mr. G. G. Scott, and is now of the firm of Cory & Ferguson, of Carlisle. The builders were Messrs. Watson & Son, of Kirkoswald. The contractors for the building were,—for the stonework, Messrs. A. Watson & Sons, Kirkoswald; joiner work, Mr. Pollock, Penrith; plumbing and glazing, Mr. Porter, Penrith. The stained-glass windows at the east end of the church were from Mr. John Scott, of Carlisle. The total cost of the church is estimated at about 1,000*l.*

Gatesgill (Carlisle).—The chief stone of a new church has been laid here. It will be dedicated to St. Jude, and will be built in the Early English style of architecture, and consist of a nave 45 ft. by 24 ft., with centre aisle, and a chancel 21 ft. by 14 ft., adjacent to which will be a side chapel, vestry, and organ-chamber. The principal entrance will be by a porch on the south elevation. The north and side elevations will have coupled lancet windows, with projecting buttresses, relieved with gablets to vestry and organ-chamber. The west gable will be pierced with circular and lancet windows. The belfry will be erected at the south-west angle of the west gable, with gilt terminal 42 ft. high. The roof will be of high-pitch, and covered with slates of varied tints and ornamented with ridge cresting. The total cost will be about 1,100*l.* The contractors for the building are Messrs. Bragg, Wilson, & Baty, of Gatesgill; for the carpenter and joinering work, Mr. Ward, of Raughtonhead; slating, Mr. Nanson, Carlisle; plumbing and glazing, Messrs. Thomson & Sons, Carlisle; plastering, Messrs. Johnston, Brothers; ironwork, Mr. Wm. Corbett, Carlisle. Mr. John Lowe, of Manchester, architect, has supplied the design for the building. The church will be built of stone from quarries in the neighbourhood.

Yoxford.—The church here has been reopened, after a renovation of the interior. The two galleries have been removed, and the dormer windows in the roof blocked up. The church has been rebenched with New Zealand Kawrie pine. The chancel floors are paved with tiles. The walls have been scraped and cleaned. An organ, built by Mr. Green, of Ipswich, has been presented by the curate in charge. Mr. J. W. Brooke, of Sibton, has presented the new north door, curtain, &c. The door was built under the superintendence of Mr. R. M. Phipson, architect, of Ipswich and Norwich. The rest of the work has been carried out by Mr. Charles Nunn, of Friston, builder, the execution of the work having been performed by him, jointly with Messrs. Clayton & Cotton, carpenters, Yoxford. The whole cost of the restoration, exclusive of the organ, will be upwards of 600*l.*

Newington.—The restoration of the chancel of the church here, with the exception of a little decoration, has been completed. The temporary window is of white, bordered with red. The reredos is not finished, as the wall is too damp for illuminating. The alabaster tomb of Sir John Brook has been restored by Messrs. Houghton & Co. The gallery has been removed.

Kendal.—The parish church restorations have been completed. The present restoration will cost about 2,500*l.* This added to 6,400*l.* spent in 1850-2, and 2,200*l.* in 1863-4 amounts to more than 11,000*l.*, the greater part of which was raised by voluntary contributions, and is exclusive of several presentations. The works have been carried out under the designs furnished by Mr. J. S. Crowther, of Manchester, who has been the architect on all the several occasions. The contractors for the carpentry were Messrs. John Fisher & Samuel Compston; for the masonry, Mr. Robert Shaw; for the plumbing, Mr. Robert Winder; for the staining and varnishing, Mr. William Jackson; and for the plastering, Mr. Joseph Steel, all of Kendal.

Hertford.—A meeting of the committee for rebuilding St. Andrew's Church has been held to consider the steps to be taken with reference to the plans and estimates for the new church. The contracts sent in by different builders, it was stated, were all considerably in excess of the architect's estimate, and they were rejected. It was then referred to Mr. Johnson to find, within a specified time, a builder to carry out the works at the cost he stipulated. This he had done, and Messrs. Dove, of Islington, have offered to take the contract for 3,215*l.*, omitting the heating apparatus. They at first offered to do the work for 3,450*l.*; and then omitting the heating-chamber (which would cost 60*l.*) for 3,390*l.* Since then they had sent in another estimate, offering to carry out the plans, building walls of 2 ft. thick, instead of the thickness figured on the plans (which was 2 ft. 3 in.) for 3,215*l.* The sub-committee recommended Messrs. Dove's estimate of 3,215*l.* to the general committee for their adoption, subject to the question of finance; and the general committee agreed to this.

Saxlingham.—The church here has been reopened. There is a new aisle, equal in area with the nave, and separated from it by an arcade springing from five pillars, and surmounted by a new roof. The windows (five in number) are similar to those in the churches of Shelton and Alburgh, which latter is supposed to have been built by the same architect as the church was restored by. The central one, of stained glass, by Messrs. Hardman, of Birmingham, illustrates the story of the "Good Samaritan." Parallel with the aisle has been erected a vestry, opening into the chancel by the north wall. The alterations in the nave consist of the windows and roof. The former have been enlarged perpendicularly; the latter, which of late was flat and almost resting upon the beams, has been replaced by one of greater elevation, with cornices and diversified spandrels. The narrow archway leading into the tower has given place to one extending to the full breadth of the tower, through which is seen a window erected over the new stone doorway, which leads from without into the ringing-chamber. The church is laid throughout with black and white tesselated pavements. The pewing is of oak, moulded and surmounted by poppy-heads. The contractors were Messrs. Rust, Devereux, & Burrell, of Norwich; and Mr. Benest was the architect.

PROVINCIAL NEWS.

Newcastle-upon-Tyne.—The foundation stone of the new hospital in connexion with the Newcastle-upon-Tyne Poor Law Union Workhouse was laid on the 9th inst. The hospital is intended for the accommodation of 200 patients, being sick and infirm inmates of the workhouse; and the estimated cost of its erection is 14,000*l.* The building forms three sides of a quadrangle, the latter being open towards the south. The east and west wings will be two stories in height, each containing two sick wards, 94 ft. long, 24 ft. wide, and 14 ft. high. The range on the north side of the quadrangle will also be two stories in height, and contain two wards on either side of the centre building, 88 ft. long., 24 ft. wide, and 14 ft. high. The centre building will be three stories in height, and is appropriated to nurses' rooms, sculleries, surgery, committee-room, &c. The walls will be of stone, and the style may be called Domestic Gothic. Mr. Robert Robson, of Wideopen, is the contractor; the architect, Mr. S. Oswald; and the clerk of Works, Mr. George Nixon.

Harrabeer, South Devon.—A cottage residence has been just erected for Mr. Wm. Eastlake. It is in the parish of Buckland Monachorum, and is surrounded by fine moorland scenery. The walls are of Lee Moor white brick. The more exposed dressings are of wrought granite, the rest of freestone. The lower portions of win-

dows are glazed with plate glass; the spaces above the transomes with stained glass in lead. The furniture of the cottage will be chiefly of oak. Mr. James Hine, Plymouth, is the architect.

Preston (*Lancashire*).—A new workhouse has been opened for the purposes of the Preston union. The building has cost between 40,000*l.* and 50,000*l.*, and has been designed by Mr. Leigh Hall, of Bolton. The site is at Fulwood, about a mile from Preston. Hitherto there have been five workhouses in the union, but the new establishment will do away with them all.

West Bromwich.—A meeting of the committee appointed to consider the various plans forwarded for the hospital about to be erected in West Bromwich, in place of the present inconvenient dispensary, has been held at the Infirmary Board-room, High-street. Designs for the building were received from Mr. Y. Thompson, of Bennett's-hill, Birmingham; Mr. G. B. Nichols, West Bromwich; and Messrs. Martin & Chamberlain, of Birmingham. The sub-committee ultimately decided to recommend the Infirmary Board to adopt the plans of the last-named gentlemen. The plans provided for the erection of forty beds, but at present it is only intended to build so as to have room for twenty, though the administrative offices will, of course, be designed for the whole number of beds. The site of the proposed building will be on the Lodge Estate, West Bromwich, in Edward-street, at right angles to Lombard-street, and the ground contains 6,000 square yards. It is hoped the work of excavation will be commenced in March. The total sum at present raised is about 2,350*l.* This amount includes a subscription of 215*l.* from the workmen of Messrs. George Salter & Co., and from those of Messrs. P. D. Bennett & Co. 126*l.*, both of which are payable by small weekly instalments extending over three years. The building will cost between 5,000*l.* and 6,000*l.*

FROM IRELAND.

St. Mary's, Crumlin-road, Belfast. — This church is the first of five churches which were to be built to supply the great need of church accommodation in the suburbs and manufacturing districts of Belfast. It has been consecrated by the Primate of all Ireland. It is from the designs of Messrs. Slater & Carpenter, of London. It has a lofty wide nave, with side aisles nearly as wide and lofty as the nave, following in this respect the idea of the great church of Austin Friars, in London. The tower is central, with transepts and chancel. The nave arcades are simple in character, with alternate voussoirs of Carlisle and white Scrabo stones, resting on shafts of red Scotch stone. The roofs are simple. The curved braces of the nave roof rest on the ends of the tie-beams of the aisle roof, which are brought through the wall, thus forming a continuous tie across the church. The windows are lancets in triplets and couplets. The couplets in the aisles have large crossed circles over them, under one great inclosing arch on the inside. The nave has a traceried rose on the gable. The chancel is apsidal, with crossed lancet windows. The tower rests on four moulded arches of red and white stone, rising from stone piers, two of which are engaged in the chancel and transept walls. Above these is a lofty lantern stage open to the church, with four lancets on each side, richly arcaded outside, resting on shafts of red Carlisle stone, with carved capitals. Above is a similar and much more lofty stage, for the bell-chamber. The angles of the tower have pilaster buttresses, with shaped angles. The spire is of timber, slated, and has on each of its cardinal faces rich spire-lights of oak, with lofty pointed roofs. The whole height of the tower and spire is 120 ft. The church is built of basalt faced with white Scrabo stone, red Scrabo and Carlisle stone being introduced in the arches and bands. The paving is of Dungannon stone, and the chancel is tiled. The builder was Mr. Henry, of Belfast.

St. Patrick's, Ardragh, County Monaghan.—This church, or rather part of a church, has just been consecrated, and has been built by Mr. E. P. Shirley, from Messrs. Slater & Carpenter's designs. It is a simple oblong building, with an apsidal sanctuary opening out of it by an arch at the east end. The whole is to form the chancel of a much larger church, but for the present it will be used for the parishioners. It is four bays in length, and has lancets moulded on the inside. The chancel arch is built up in the west wall, and encloses a traceried rose-window, with a temporary door and porch under. The roof is of timber, with arched principals. The sanctuary is apsidal, with a moulded lancet in each side. The roof is of solid stone, arched on the inside, and weathered on the outside. The walls are lined with polished alabaster. The floors are of rich tiling. The sanctuary is raised seven steps, the Shirley vault being formed in the crypt below. The windows are all filled with stained glass, by Messrs. Clayton & Bell; the rose-window illustrating the life of St. Patrick; the sanctuary windows the Passion of Our Lord. The other windows are of simpler design. The marble work is by Sibthorp, of Dublin, and the builder was Mr. Parks, of Carrickmacross.

SANITARY PROGRESS.

Sanitary Inspection of Shipping.—The Sanitary Act of 1866, which the *Builder* had previously done its best to show the necessity for, especially as regarded the sanitary inspection of shipping, as well as in other respects, has been acted on by the City authorities in the supervision of the sanitary state of the shipping within its limits; and the report of Dr. Letheby, the medical officer of health for the City, on that important subject for the last two years, has just been issued, and we now give an abstract of its contents:—

"Small as the City district is, it affords ample proof of the necessity for proper inspection of all the shipping in the port of London; and it indicates, moreover, the kind of work which it entails; for, during the last two years, there have been 4,223 inspections of the ships and vessels within your jurisdiction, and on 140 occasions it has been found necessary to amend their sanitary condition. This number includes nearly all the craft which are under your control, and the chief improvements required have been the cleansing and better ventilating of the forecastles. As a rule, your officer makes about forty inspections a week, and he takes the opportunity of visiting the ships directly they arrive in port, in order that he may see their actual working condition.

From what I have seen of the state of the vessels in the river, I am of opinion that the appointment of a sanitary inspector of shipping has been productive of much good; and it is to be regretted that a like appointment has not been made by the other local authorities having jurisdiction over the shipping of the river; for it is manifestly an inconsistent thing that of the whole port of London, only about a thousand yards of it, on each side of London-bridge, should be subject to sanitary supervision.

That there is great necessity for this is admitted by all who are acquainted with the sanitary condition of our mercantile marine; for over and over again it has been shown that fever and scurvy and epidemic diseases are not only very prevalent in the vessels which trade with this port, but that they are also directly referable to defective sanitary arrangements. This has frequently been a subject of remark by the medical officers of the Dreadnought hospital-ship, and of the customs. . . . Nearly all the cases of fever admitted into the hospital-ship are of the typhoid class, which indicates bad sanitary arrangements. . . . It is open to inquiry whether the inspection of vessels should not extend beyond the mere lodging of the crew, so as to reach the nature and quality of their diet; for if, as Dr. Barnes asserts in his report to the Medical Department of the Privy Council, half of the men received into the Sailors' Home at Poplar are, at the time of their admission, suffering from sea scurvy, and if, as he also states, it is not uncommon for from 20 to 70 per cent. of a ship's crew to be diseased at one time, it is highly necessary that inquiry should be instituted into the cause of such mischief, for it concerns the health and well-being of upwards of 170,000 British sailors. Laws have been made, and notably the Merchant Seaman's Act for 1835, for the purpose of obviating this, but they are practically inoperative.

Inspections of this nature might properly be made by the sanitary officers of the port, whose duties would then extend to the whole sanitary condition of the ship. At present, however, there is a lamentable failure of all such proceedings; and even in respect of the partial supervision of our mercantile marine, in so far as the provisions of the Sanitary Act of 1866 are concerned, there is an open disregard of the law. . . . . It is expedient, as well as imperative and necessary, that the several nuisance authorities on the two sides of the River Thames should agree on some mode of co-operation, whereby a proper inspection of all the shipping in the port of London shall be regularly and systematically performed, in accordance with the provisions of the Act of Parliament."

Stamford.—The Marquis of Exeter has presided at a public meeting in the lecture-room of the Stamford Institution, for the purpose of considering the sanitary state of the town. There was a numerous attendance of the clergy, medical men, and chief inhabitants. After some discussion the following resolutions were carried unanimously:—"That it is desirable to take steps to adopt a more effective system of drainage in Stamford, with a view to improve its sanitary condition." "That a memorial from this meeting be presented to the town council, requesting them to adopt the Sanitary Acts in Stamford." In course of the discussion it was remarked by Mr. Phillips that the drainage of the town might be materially improved, and that the impurity of the water supplied from the public wells was the great cause of preventible disease amongst the inhabitants. Mr. Heward mentioned that diarrhœa of a very serious type was prevalent in the town during the past autumn, and that many deaths occurred. Mr. Paradise said that the cost of draining Grantham had been about 6,000*l.*

UTILITY OF THE NORWEGIAN COOKING APPARATUS TO WORKMEN AND OTHERS.

A SUBSCRIBER, of Newcastle, Ballymahon, Ireland,—Mr. L. H. King Harman,—writes us on this subject. He gives the result of three successful trials made under his own superintendence. In one case, he states:—"Having a shooting party of seven gentlemen at this place, I had a proper quantity of Irish stew made in the usual manner, put down on the hot hearth in the largest of the tin vessels, when it came to a boil in thirty minutes; it was then kept boiling fifteen minutes longer, when it was rapidly taken from the hearth, and placed in the machine, with a quantity of extra potatoes, in the other two tins, which last tins came to the boil in about half the time of the larger one. The box was then locked up, and sent in a cart after the shooters, when in two hours and a half, on being opened and turned out, the gentlemen found all the contents most perfectly cooked, steaming hot, and most excellent. This afforded as much as the seven could eat, and was also sufficient for an excellent dinner for the head keeper and some of his assistants. This machine will cook anything which can be boiled, as meat, fowl, vegetables, dumplings, &c. I considered it a most complete success, and that it will prove a useful companion to all persons obliged to move about, and not able to be at home for comfortable, hot, and regular meals, as railway guards, land agents, on inspecting expeditions over the properties under their charge; shooting parties, commercial men, pic-nic excursionists, &c.; and last, not least, it would prove of the utmost value to our army, and when made on a large scale it would do well to accompany the new water-transport cart, and afford excellent refreshments to our soldiers after a heavy march, an exhausting field-day, and a well-fought battle, when a hot and comfortable meal would go far towards restoring the strength and maintaining the life in many a wounded man. The great utility of these machines will plead my excuse for trespassing on your columns. They only require to be known and properly tested, in order to be highly prized and valued. The smallest size would prove most useful to tradesmen, as carpenters, stone-cutters, &c., working on buildings, &c., far from their own homes, before leaving which, when at their morning meal, their wives or children could prepare their dinner, which they could find well cooked, hot, and comfortable when required."

Were the apparatus made *cheaper* and *better* than at present, it would come into general use among workmen and others. Its present price, 12s. 6d., is too high, and the way in which it is put together far too slight. A first-rate tradesman informed Mr. Harman that they could be made *properly* at 5s. each in a *large quantity*, and leave a good profit to the maker.

RAILWAY CRUELTY.

SIR,—I have just been seeing my daughter off by the twelve o'clock train for Leeds. As the journey is expensive for poor folks, she took a second-class ticket; but nothing would induce the porters to let her have a hot-water tin,—not on payment or any way. They said they had *strict orders* only to put them *gratis* into first-class carriages. They might surely let poor second, and still more, third-class passengers have that little comfort on a long cold journey at a small fixed price. It is most arbitrary and *insulting*, I call it, to those who cannot pay the high first-class charge: the second is high enough. Fancy nurses and children, or a delicate young governess, going all the way to the North in the depth of winter, and being refused such a thing, whilst they see them *given* away where they might be paid for. I hope you share my indignation. AN ARTIST.

*** We do share our correspondent's indignation. Independently of the cruelty of the thing, it is utterly stupid. Directors know well enough, now, that it is from the second and third classes that they derive the bulk of their revenue, and yet they have not the sense to see the desirability of rendering travelling as agreeable as possible to those classes. It is an utterly short-sighted policy.

BRICKMAKING IN SCOTLAND.

A WRITER in the *Weekly Scotsman*, on Manufactures in Native Clays, says,—"The number of bricks made in Britain in the year 1802 was 714½millions; in 1840 it was 1,725 millions; and in 1850, the year in which the duty was abolished, it was 1,563½ millions. The number of bricks made in Scotland annually was 15½ millions in 1802, and 47¼ millions in 1840. If the great increase in railway and other works, the rapid enlargement of towns, and other recent causes leading to a more extensive use of bricks be considered, the number now made in Scotland cannot be less than 200 millions a year.

There are in Scotland 122 manufactories of bricks, tiles, and articles of a similar nature; and in connexion with these from 4,000 to 5,000 persons are employed. The manufactories are widely scattered over the country, the farthest north being at Banff, and the farthest south at Dalbeattie; but the greater number are in Lanarkshire and Fifeshire, in which counties valuable beds of fire-clay exist. The most extensive manufactory is that of the Garnkirk Fire-clay Company, situated on the Caledonian Railway line, about six miles east from Glasgow. The company was originally formed to work coal, but, finding that extensive seams of fire-clay existed on their property, they took to manufacturing that material, which now almost exclusively engages their attention. The principal seam of clay is 7 ft. in thickness, and lies at an average depth of twenty-eight fathoms. Its quality is considered equal to that of the best Stourbridge clay. The manufactory covers upwards of six acres of ground, and is surmounted by thirty tall brick chimneys, which give it an extraordinary appearance. Raw material is brought in, and finished goods are sent out, by branch railways, the traffic on which never ceases from one week's end to the other. Two hundred tons of clay, and about an equal weight of coal, are used every day. Upwards of 300 men and boys are employed by the company, and these are aided by three steam engines with an aggregate of 150-horse power. This is exclusive of the power employed to bring the clay and coal out of the pits. The clay is of a dark colour, owing to the presence of a small proportion of bituminous matter; but when that is dispelled by the action of fire, only silica and alumina remain, and it is the presence of these substances in certain proportions that decide the value of the clay. As it comes from the pits, the clay is entirely devoid of cohesion or plasticity; and in order to bring it into working condition, it has to be ground very fine, and then mixed with water. Several powerful mills are used for this purpose. They consist of great iron rollers, which travel round a circular trough, and pass over the clay. Several hundred-weights of material are operated on at once, the time for which the grinding is continued depending on the quality of the articles to be produced."

SNOW AND THE VESTRIES.

I VERY much wish to be permitted to ask whether our vestries, district boards of works, and like bodies, are at all thinking of what to do in case London should be visited with a snow-fall of anything like the greatness of that which came upon us in the first week of January, 1867? I have read a number of local papers in order to discover any indication of preparation or thought on the question, and I confess I have found no indication.

"We know not when the storm may come,
But 'tis coming in the air;
And this is the warning of the drum,
Prepare! Prepare! Prepare!"

I was perhaps wrong in saying that no local body had given any attention to the snow problem. The City of London, the localest of our local bodies, made some stir in the matter during the whole of the year 1867. Its Engineer, in a report dated January 17 of that year, that is, about a fortnight after the great fall, detailed "the measures taken for cleansing the streets of the City after the snow-storm on 1st January, 1867." This report, with some addenda, was subsequently issued in pamphlet form, and no doubt is still procurable at the office of the Engineer of Sewers, Guildhall.

On October 31, 1867, the City authorities offered, by advertisement in the public prints, premiums for "plans and suggestions as to the best mode of effecting the removal of snow from streets and places within the City." This move of the magnates (the premiums offered were beggarly in the extreme, 30 guineas for the best plan, and 20 guineas for the second best!) resulted in the chief clerk, Mr. Daw, receiving by the appointed day, November 26, 1867, "157 replies, some with drawings, and some few with models illustrative of the schemes. These were severally referred by the committee to the Surveyor, to arrange and classify. . . . They were arranged in classes as follows:—1. Snow to be melted by furnaces, boilers, or steam jets, &c.; 2. Snow to be carted away to vacant places, River Thames, foreshore of the river, scavengers' yards, railways, or to minor streets; 3. Snow to be thrown into sewers, down existing inlets, or by new inlets to be constructed; 4. Snow to be dissolved by salt, salt and water, manganese, or other chemical agents; 5. Snow to be heaped into ridges in centre on sides of carriage-way to melt gradually; 6. Snow to be rolled by steam or horse power."

On Thursday, December 19, 1867, the Streets Committee presented their report to the Court of Common Council, which met on that day. The committee had met on several occasions after the completion of the classification by the surveyor, "and had carefully examined the schemes separately, and had selected several of them for further consideration. They proposed that sundry experiments should be made, with a view to test the practicability of some of them. They avoided, therefore, giving an opinion upon the merits of any until the result of such experiments had been ascertained. But considering that snow might fall before these experiments had been tried, they had carefully considered the best course to be adopted, and had given the superintendent such instructions as they believed would greatly assist in mitigating the inconvenience of a heavy fall of snow in the City."

This report, as I have said, was presented on December 19th, 1867, now more than a year ago. We had scarcely any snow in London last winter, and so, of course, no "experiments" with the new modes were tried.

Thus, then, stands this grievous snow question.

On the 3rd of January, 1867, one of our great dailies wrote:—

"London woke up yesterday morning to find the streets and pavements covered with three or four inches of snow. To all appearance we could not have been more surprised if we had all been asleep since the hottest day in last August. Nobody seemed to expect the snow, and nobody was prepared to meet it."

Let us not deserve this stinging reproach again. Let our local boards at once form "snow committees;" let them estimate, and, if need be, marshal their forces *in advance* of the time. Let each local surveyor take a journey to Guildhall and ask permission of Mr. Haywood, the very intelligent engineer of the Commissioners of Sewers, to inspect the hundred and a half of plans sent in by the extremely patient hundred and a half of planners; let the local surveyors meet together and compare their experiences, and interchange their ideas *before* the avalanche descends; and then it will not be said again—as was said with strictest truth of the snowstorm of the 1st of January, 1867—"*Nobody was prepared to meet it!*"

JASPER.

EXEMPTIONS: METROPOLITAN BUILDING ACTS.

SIR,—I should feel greatly obliged if you could give me information on the following matter:—

Amongst the buildings exempt from the operation of the Metropolitan Building Act (*vide* Part I. Sec. VI.) are, "all buildings not exceeding in height thirty feet, as measured from the footings of the walls, and not exceeding in extent one hundred and twenty-five thousand cubic feet, and not being public buildings, wholly in one occupation, and distant at least eight feet from the nearest street or alley, whether public or private, and at the least thirty feet from the nearest buildings, and from the ground of any adjoining owner."

What I wish to know is:—

1. Does this clause justify any person in erecting two or more houses *on his own ground less than 30 ft. apart*, if more than 8 ft. from any road, and at least 30 ft. distant from the ground of the adjoining owner, without the interference of the district surveyor?

2. If the district surveyor choose to inspect the premises to ascertain whether or not they are exempt from the Act, is he entitled to any fee?

A case raising the first question was before the magistrate at the Woolwich police-court some few weeks ago, but was not completed on the first day of hearing. It was adjourned to, I think, the 12th or 19th of November, but I have been unable to ascertain how the matter was settled. As, however, the question is of some importance to builders, and the public generally, some of your readers may be able to inform us of the magistrate's decision.

W.

*** We do not know how the case in question was settled, but are quite certain the clause quoted does *not* "justify any person in erecting two or more houses on his own ground less than 30 ft. apart, if more than 8 ft. from any road, and at least 30 ft. distant from the ground of the adjoining owner, without the interference of the district surveyor." The clause requires for a building to be exempt, that it be at least 30 ft. from *any* building, no matter to whom it belong, and at least 30 ft. from the ground of any adjoining owner. If it did not do so, whole rows of houses belonging, as they often do in the first instance, to the same person, might be built without the control of the act. In reply to question 2, no fee is allowed by the act to a district surveyor for ascertaining that a building is exempt.

NORTH RIDING OF YORKSHIRE BRIDGE-MASTER.

SIR,—Some weeks ago exception was taken in your pages to an advertisement issued by the magistrates of this riding for a bridge-master. The effect of that advertisement was to bring not less than fifty applications from engineers. This number was reduced to eleven by a committee, and the appointment will take place by vote at the Quarter Sessions held this week. A most active canvass is proceeding by the selected eleven. From my own experience, I can safely say that a bridge-master who attends, not only to the building of new bridges, but the repair of present ones (in a Northern climate, where sudden and great rises of waters occur), the roads 100 yards on each side from the crown, the parapets and railings, the gaol and police courts and cells, &c., will have plenty of work to attend to without private practice.

A NORTH RIDING MAGISTRATE.

RAILWAY COLLISIONS.

SIR,—Will you allow an old correspondent to mention a circumstance which may at least appear curious, if not startling? Some twenty-five years ago he really believed he possessed a "secret," though a "civil engineer" (with mutual friend) must afterwards have had a very similar one, and expected vast advantages from it, to infallibly neutralize, or "paralyze," railway collisions, if at highest speed, and within a few feet of contact. But they afterwards encountered, or at least the writer did, an over-looked circumstance, which sadly damped their aspirations The "shocks" of "instantaneous stoppage" which perhaps they could have achieved, compared by a *Times* correspondent three or four years ago, to "a fall from a height of 60 ft.," might "*half* kill" nearly all the passengers in a train, near and far. And this, as a *certain* evil, might be much worse than the other "contingency." Still, with respect for abler judgment, could not something more be done *there* by means of *sounds*? I do not mean *temporary* "fog signals," or even constant "shriek" of "whistle," though that would be infinitely preferable to mutilation or death, of which we have had such terrible examples, and even social and religious warnings lately. But a regular announcement of approach at sufficient distance for safe measures. With sole drawback of some "noise," which safety to "life and limb" might much outweigh, say a giant *house-clock* "bell" about 5 cwt. fixed very near front, and sharply "struck" by machinery once in three or four seconds, or oftener, though capable of being stopped in "one." If the "bell" were carefully tuned to a "high" or "silvery" tone, the effect might not be so bad; perhaps in the country rather "lively." And this, I expect, could be distinguished when prepared for in *almost* any weather at about or near a quarter of a mile distant.

J. D. PARRY.

COMPENSATION CASES.

HENRY ABRAHAMS V. THE CORPORATION OF LONDON.

THIS case (Lord Mayor's Court), a compensation claim, arising out of the works of the Holborn Valley Viaduct, came on for hearing, on the 4th inst., before the Common Serjeant. The claimant, Mr. Henry Abrahams, is a glass-cutter, lead merchant, &c., and carries on a large business at No. 88, Snowhill and 1, Farringdon-road. The original claim sent in some time back was for 10,589*l.*, but was amended to the sum of 8,895*l.*

Mr. J. H. Lloyd and Mr. Littler (of the Common Law Bar), instructed by Messrs. J. & M. Pontifex, appeared for the claimant; Mr. Hawkins, Q.C., and the Hon. F. Thesiger, instructed by the City Solicitor, appeared for the Corporation.

From the opening speech of the claimant's counsel it appeared that premises in the neighbourhood of the claimant's were daily increasing in value from the enormous pedestrian and vehicular traffic in Holborn, and more especially so the claimant's premises, in consequence of their fine central position; and evidence of the claimant and his surveyors (Mr. E. Fox, Mr. G. A. Young, and Mr. Samuel Green) showed that the sum claimed was not in any way an exorbitant one.

After several other witnesses had been called on behalf of the claimant and severally cross-examined by the counsel for the Corporation, the jury awarded as compensation the sum of 4,593*l.*

MESSRS. THORN V. THE METROPOLITAN BOARD OF WORKS.

This claim, under the Lands Clauses Consolidation Act, for compensation for compulsory removal from offices which the claimant rented, and which were required for the Thames Embankment and the new street to the Mansion House, was heard on Tuesday at the Guildhall Police-court, before Mr. Alderman Finnis.

Mr. Murphy, instructed by Messrs. Brandon, appeared for the claimants; and Mr. Philbrick, instructed by Mr. Ward, for the Metropolitan Board of Works.

Mr. Murphy said that the claimants were the contractors for the construction of Blackfriars Bridge, and the compensation they sought was out of the ordinary course. In 1864 Messrs. Thorn took the contract for the bridge, and immediately took the second and third floors of No. 13, Chatham-place, the windows of which overlooked the works, so that they could always keep their eyes on the workmen. The top floor they let off to Mr. Bryant, their resident engineer, and the one under it was retained for their offices. In September last the premises were required for the new street from the Mansion House to the Thames Embankment, and Messrs. Thorn had to give up their two floors and remove to the opposite side of Chatham-place, No. 4, where they were unable to have a view of their works or the men employed upon them. There was a great loss accruing to the claimants from the fact that they were not now able to keep a sufficient supervision over them. That loss it was difficult to arrive at, from the exceptional character of the case. Some had estimated so much a-day loss upon each man, while others had thought it the fairest way to take a percentage on the wages they paid weekly, and they had done so. They had put down their loss at the moderate sum of 5 per cent., but he was bound to say that that was only a speculative item, for they had no data upon which to arrive at any definite sum.

The claim put in was 1,500*l.* for the loss on the men's time by want of supervision, 40*l.* for increased rent, 20*l.* for fixtures, 20*l.* for reinstatement, 16*l.* for loss of clerks' wages during removal, and 5*l.* expenses of removal; making a total of 1,601*l.* Evidence having been given in support,

For the defence Mr. Philbrick called

Mr. E. N. Clifton, architect, who said he had constructed buildings such as Gresham House and East India-avenue, and paid about 3,000*l.* a fortnight for wages. Supervision from a window, such as that spoken of, was not supervision at all, and the want of it could make no appreciable difference in the profits of a contract. There was no value in Mr. Thorn's interest in No. 13, for he paid a rack rent; but where a tenant was compelled to move, it was customary to give him a year's rent.

Mr. Trist, of the firm of Norton, Trist, & Watney, thought that 150*l.* would cover every expense and liability of the Board of Works, and be a liberal allowance.

Mr. Alderman Finnis retired with Mr. Martin, the chief clerk, to consult on the matter, and on returning into court awarded Messrs. Thorn 400*l.* compensation, and 50*l.* costs.

BOOKS FOR THE SCIENCE CLASSES.

SIR,—I think if each of the science schools was provided with a circulating library of first-class scientific works, it would greatly facilitate the spread of scientific knowledge. A committee should be appointed to collect the most valuable of English and foreign works, and place them at the disposal of the students, for the payment of, say 1d. per week. Surely the Government could accomplish this; and I think it would be hailed with delight by the working classes of England, who wish to improve

themselves. It would render the technical phrases and terms familiar to the ear of the student, and save a considerable amount of the teachers' time. For I am certain there are many that join the science classes that do not understand a single term of geometry; and they commence drawing without really understanding what they are doing. They do not succeed because success is impossible, and the teachers very rarely give them any encouragement, and they become disheartened, and ultimately leave the school. And I also think there is room for amendment in the appointment of teachers, for I have actually seen a teacher in one of the London schools puzzled by a simple problem in descriptive geometry, and also very inattentive to the students: such as spending thirty or forty minutes in a friendly chat. I think every teacher should be thoroughly conversant with the science that he is paid to impart to his pupils. Moreover, he should pledge himself to execute his duties, and take a kindly interest in his vocation, and his attendance should be regular and punctual, which, I am sorry to say, it is not in the school mentioned above. After considering the above facts, can we wonder that so few pass the examination? I hope the authorities at South Kensington will take this into consideration.

A WORKING MAN.

HOLLOW WALLS.

SIR,—Can any of your correspondents inform me whether, in the case of a dwelling-house built with hollow walls, any openings (as air-bricks, &c.) are necessary from the external air into the chamber between the two thicknesses of the wall, and, if so, what number in proportion to wall length, and in what position they should be placed?

A. B. C.

FLOWER POTS.

SIR,—Is it not possible, in this age of window gardening amongst all classes, to manufacture a better sort of earthenware flower pot than is usually sold;—say a section of a column, with two rims on the upper part and two rims on the lower, with two lip side handles such as are commonly seen on the old red earthenware pan. We should then have a flower pot with a solid base, not so topsy-turvy. I cannot afford china pots, made square, on account of their great expense, besides not being so well adapted for the growth of plants as earthenware. I think if gallon and peck pots were so made they would have great sale.

CIVIS LONDINENSIS.

BOSTON CHIMES.

SIR,—Writing in a strictly independent yet temperate spirit, I gave a descriptive account of the bells and chimes at Boston in the *Builder* of the 19th ult. How far "G. L." in your last impression has fairly represented the scope and tenour of my remarks, let your readers decide.

I might reply at some length touching the suggestion and proposal of your correspondent. I will, however, merely say on the present occasion that if he will refer your readers—I do not myself require such information—to any set of large bells on which the capabilities of a machine constructed upon the principle which he advocates have been, or will be, *fairly tested*, much time and trouble will be saved.

THOMAS WALESBY.

NEW METROPOLITAN MARKETS.

SIR,—The ultimate erection of new markets for the accommodation of the more crowded districts of London is no doubt certain, either under central or local authority, but in the mean time much may be done to make the existing centres of retail business more convenient on the working man's great marketing night, Saturday.

My suggestion is that such streets as have by custom become regular markets, and are in consequence practically impassable for horse traffic on Saturday evenings, should be closed at each end from say six till twelve o'clock, the district scavenger ordered to cleanse the street thoroughly from end to end, and the stall-keepers placed back to back in the centre of the road.

In many streets like East-lane; The Brill, Somers-town; New-cut; Westminster-broadway; Narrow-street, Limehouse, even this arrangement would leave little enough room; but the two comparatively wide paths on either side of the street, and the stoppage of vehicles, would be preferable and more convenient to both seller and buyer than the present disorganized condition of these necessary resorts. The parish surveyors and the police might easily initiate the system, and, working in harmony, could not fail to add to the comfort of all concerned.

A. M.

NEWS FROM MELBOURNE.

THE warehouse of Messrs. Warne & Webster, Flinder's-lane, Melbourne, is a five-story building, recently erected in this lane of large warehouses. It is being erected for a firm of importers and clothing manufacturers. The space occupied is 27 ft. frontage by a depth of 90 ft., and 52 ft. in height from footpath to the top of blocking. The half-sunk basement is of bluestone ashlar to the level of the ground-floor, and thence, to the top of the building, of brick, each floor being lighted by windows on both sides. The floors are 12 ft. high, with the exception of the basement, which is 10 ft., and the attic, which is 9 ft. to underside of tie-beam of roof. Goods are raised by a hydraulic lift to the several floors. Each floor is supported on wrought-iron girders stretching across the whole width from wall to wall. The front towards Flinders-lane, from the footpath to the level of the ground-floor, is fine axed rusticated blue stone, with plinth and capping, angles rounded, and segmental-arched window-heads. The superstructure is cemented, the ground-floor having a cornice and semicircular-headed entrance-door, and windows springing from the impost, the voussoir of arches being vermiculated with moulded archivolt between the voussoir, the jambs rusticated, and the rounded angles rusticated and brooched to receive the square quoin above. The object of rounding the angles is to prevent drays from injuring the building. The two ranges of windows above the ground-floor cornice and below the main cornice have, in each floor, three windows with regular entablatures, moulded jambs, sills, &c., and rusticated quoins up the angles, the whole surmounted with a very plain adaptation of Vignola's grand block cornice. Over the cornice is an attic having rusticated pilasters with vertical raised panels and rusticated quoins; the three windows are finished with architraves; and over all an attic cornice and cincture blocking.

Books Received.

Art of Constructing and Repairing Common Roads. Weale's Rudimentary Series. London: Virtue & Co., Ivy Lane. 1868.

A FOURTH edition of this volume of Weale's Rudimentary Series, with additions, has been published. It includes a "Survey of the Metropolitan Roads," by S. Hughes (which might be left out without much loss); the "Art of Constructing Common Roads," by Henry Law; "Remarks on the Maintenance of Macadamised Roads," by Sir John Burgoyne; and a note by Mr. Robert Mallet on the causes of the apparent failure of macadamised roads in certain localities. Mr. Mallet regards asphaltic macadadamising as the very best material for the street surfaces of populous cities. A large amount of valuable instruction is given.

A Descriptive Treatise on Mathematical Drawing Instruments. By WILLIAM FORD STANLEY. Second Edition. London. 1868.

IN the second edition of this Treatise, already as originally published favourably reviewed in these pages, Mr. Stanley has given some additional matter, including illustrated accounts of a tray for holding wood blocks on which drawings are to be made; a copying-table; a set square for section lines; a full description of planimeter for computing areas; a gauge for cutting off drawings, and some few smaller matters. The book will be found useful in every office.

An Elementary Course of Plane Geometry. By R. WORMELL, M.A. London: Thos. Murby.

Mr. WORMELL feels, with others, that sticking to Euclid, pure and simple, is not the way to teach properly the practical bearings of geometry; and he has, therefore, compiled this text-book for beginners, with reference to utility. The advantages that have resulted from the introduction of the system in the City middle-class schools, enable him to speak with some confidence of its value. Many of the illustrations are drawn from architectural subjects, which leads us to say, by the way, that the view of a cottage, on page 67, is in faulty perspective. Nevertheless it is a good little book.

The Art-Journal.

THE *Art-Journal* begins the year with the first of a series of illustrated papers, headed "The Stately Homes of England (occasionally open to the people)," by the indefatigable editor, Mr. S. C. Hall; Mr. Llewellynn Jewitt contributing the antiquarian notes and details. Alton Towers is the first "stately home" treated of. The number is altogether a very good one, and includes a view, and some engraved details of the Paris Opera House. Mr. Jas. Dafforne again takes up his valuable series of papers on "British Artists," and illustrates well the works of Sir Joseph Noel Paton.

Miscellanea.

House Blown Down near Huddersfield.—The ravages of the recent hurricane are everywhere perceptible in some of the villages in Yorkshire. A house belonging to a farmer at Thurstonland, a wild, romantic district, was blown down, and is now a mass of wreck and ruin. The farmer's wife was completely buried among the *débris*, and when extricated, a task which occupied over half an hour in its accomplishment, it was found that she had sustained very severe injuries and bruises, caused by the descent of bricks and rafters. A cradle in which the child lay was overturned, but the occupant was not hurt. Babies always escape, somehow. One hears, now and then, of them tumbling out of railway-carriages running at high speed; but who ever heard of one of them being killed? They are scarcely ever even injured.

Proposed Rural Hospital at Ashford.—A scheme is under consideration for the establishment in the neighbourhood of Ashford of one of those excellent institutions which have been found so valuable at Cranleigh, Tewkesbury, and elsewhere. Sir Edward Hoare, bart., Mr. C. Pemberton Carter, and Mr. John Furley are prepared to undertake the establishment of a hospital of this kind at Ashford, and it is to be hoped that their benevolent exertions will be crowned with complete success. The last report of the trustees of the Cranleigh Village Hospital contains the following statement:—"The simplicity of the domestic arrangements and the comfort of being within easy reach of relations and friends, as well as the quiet of a private room, and the home feeling which prevails throughout the hospital, add materially to the popularity of the institution in its own immediate district; and, combined with a certain amount of liberty, more than can be accorded to the inmates of larger hospitals, has an influence which certainly aids in the recovery of many of the patients."

Mr. Holman Hunt a Sculptor.—Mr. Holman Hunt is in Florence. He finds so much difficulty in getting his design for his wife's mausoleum executed that he has taken lessons in sculpture, and is himself carrying out the work.

Mdlle. Nilsson a Sculptor.—According to the *Figaro*, Mdlle. Nilsson is exceedingly clever as a sculptor. The next Exhibition (it adds) will probably contain a statuette executed by her.

Manufacture of Building Material.—Among the trades lately introduced on the Tyne, the manufacture of concrete for building purposes is mentioned.

Gloucester Cathedral.—The nave of this cathedral was lighted with gas for the first time on Christmas-eve. The effect, it is said, was good. The lighting is effected by about 500 jets, projecting from the string course above the Norman arches, the main pipes being concealed from view. It has been ascertained that the cost of lighting is about a guinea each service.

Master Builders and Trade-Unions, Manchester.—A circular calling attention to the relative position of builders, brickmakers, and bricklayers has been issued. The persons and firms by whom it is signed include some of the most influential in the city. Their complaint is:—The arbitrary laws of the unionists unwisely shorten the hours of labour; limit the quantity of work to be performed in a given time; advance the rate of wages; increase the cost of all building without improving the workmanship; keep down the skill and condition of the workman; augment the difficulty of his becoming a master; and injure most the very class supposed to be benefited. To remedy this evil they suggest the employment of non-unionist workpeople and members of the Free Labour Registration Society; and that they themselves be encouraged to take apprentices from the unemployed youth of our large towns; by which means they would have an opportunity of adding considerably to their weekly wages, and thus a constant and well-regulated supply of labour would always be available, and contribute much to the general good of the public as well as to all parties connected with the building trade.

Charge against the Accountant of the Metropolitan Board of Works.—Mr. Hughes, the accountant of the Metropolitan Board, has been taken into custody and brought before a police magistrate on a charge of defalcations to the extent of about 2,000*l*.

More Alpine Railways.—Mr. Fell, the English engineer, has offered to the Swiss Federal Council to undertake the construction of three railroads, over the Alps for a guarantee of interest of 600,000f. annually. He estimates the cost of that over the Simplon at from 11 to 13 millions; of the St. Gothard, at from 13 to 14 millions; and at 15 to 18 millions for the Luckmanier.

Intensification of Gas-light.—Mr. James Allison Hogg, gas engineer, Edinburgh, practises a method of producing intense light with coal gas. A mixture of gas with atmospheric air is lighted after passing through a tissue of iridio-platinum wires at a determinal pressure. In a few seconds the metal becomes heated up to a white heat, the flame disappears, and an intense white light is the result. An enlarged picture has been taken by its aid on prepared photographic paper. The light will burn in a gale of wind, it is said, without any protection round it, and a downpour of rain will not affect it. The use of platinum to increase the intensity of gas-light has been long known; but this seems to be an improvement.

The Cheap Railway Fare Scheme.—A paper was recently read at the Inventors' Institute, London, by Mr. R. Brandon, on his scheme for the "Consolidation of Management of Railways, and Uniformity of Fares for all Distances." At present, he said, the fares average 1s. for each person; but by his plan the fares would be 1s. first-class, 6d. second, and 3d. third; and he calculated that the number of passengers would be increased sixfold. He would propose, however, that all luggage should be paid for. By this plan, taken as a whole, he expected the following results:—Single tickets, 17 millions sterling; annual, 18 millions; express trains, 11 millions; 3d. fares, half a million; luggage charge, four millions; saving in management by amalgamation, 3½ millions; total contemplated revenue, 55 millions, being an excess over the present gross revenue of 38 millions sterling. He had not entered into any calculations as to goods trains, as he did not think they would be much affected by the proposed change. He preferred that Government should take the whole of the railway capital at a value based on a seven years' average of quotations, and that the interest should be 4½ per cent. Deferred shares and bondholders would be paid out of the surplus revenue after the payment of the above charges. The chairman (Mr. H. Williams) whilst inviting discussion, demurred to Mr. Brandon's calculations. He denied the analogy between the carriage of letters and of passengers altogether. A discussion followed, in which Mr. Varley, Mr. F. W. Campion, and others took part; and the proceedings terminated with a vote of thanks to Mr. Brandon.

The French Atlantic Cable.—For the past four months the manufacture of this line has been actively going on down at Greenwich. The cable is nearly similar to those laid down in 1865 and 1866, with the exception of the core in the present being larger, and weighing 100 lb. of copper more per mile. The object of this enlarged core is to attain a greater speed of transmission. The cable is very strong, its actual strain being 7¼ tons. Sir James Anderson, who superintends the whole work on the part of the company, has recorded his opinion that by keeping upon the Milne Bank, and around the southern edge of the Grand Bank, there can be no possibility of injury to the cable from icebergs. It is a well-known fact that the icebergs never "bottom" in over 90 fathoms of water; and, by acting upon Sir James Anderson's advice, the line would never be out of 500 fathoms of water. The *Great Eastern*, now lying off Sheerness, by next March will once again have resumed her telegraphic attire.

Progress of Montreal.—Upwards of 1,000,000 dollars have been spent in building in Montreal in the year 1868. In 1856 the value of assessed property was but little over 25,000,000 dols., and the revenue of the city from all sources 285,000 dols. Now the value of assessed property is computed at nearly 100,000,000 dols., and the city's revenue has increased to upwards of 700,000 dols.

Alarming Accidents at Churches in Liverpool.—Those assembled in St. John the Baptist's Church, Toxteth Park, on the Sunday before last, were alarmed by a noise produced by the top stone of one of the turrets falling on the roof over the south side of the nave of the building. A gale of wind was the cause. Happily the stone, though making a hole in the ceiling, rested on it. One of the churchwardens (a builder) shortly afterwards advised the clergyman to suspend the service as the wind was blowing very hard, and a similar downfall of some of the other minarets might occur. The service, therefore, was prematurely closed. A precisely similar accident occurred about the same time in St. Paul's Church. In this case the broken piece of the spire fell through the roof and landed on the organ, but without doing more injury.

The Thames Embankment.—The planting of trees on the Thames Embankment (north), as recommended some few weeks since at a meeting of the Metropolitan Board of Works, has been commenced, nearly fifty trees being now in the ground. The trees are placed at intervals of about twenty feet from each other, and already nearly half the line of ground between Westminster-bridge and Hungerford is ornamented. The three new piers now in course of construction on the river—at Hungerford and Waterloo-bridges and the Temple—are fast approaching completion.

Hydraulic Cements: The French Academy.—Paris, December 21st.—M. E. Fremy presented his second memoir "On Hydraulic Cements." These cements, he said, were produced, as Vicat established, by the calcination of argillaceous limestones. It is generally admitted that the result from the action of lime on clay is three salts—silicate of lime, silicate of alumina and lime, and aluminate of lime, which become hydrated on addition of water, and so form cements. M. Fremy's researches have been made with a view to putting these theories of hydraulicity to the test. In his first memoir, he demonstrates that the theory of hydraulicity founded on hydration does not apply to all the bodies formed during the action of lime on clay. By producing silicates of lime and silicates of alumina and lime under the most different conditions, he proved that these salts never hydrate nor solidify in contact with water unless they contain some free lime. Following up the five experiments of MM. Rivot and Chatonay, he has demonstrated that of all the bodies which result from the calcination of an argillaceous limestone, aluminate of lime is the only one which has the power of solidifying and forming a hydrate under the influence of water. In the memoir now before the Academy he expresses the following opinion:—"The 'setting' of an hydraulic cement is always due to a pouzzolanic phenomenon: consequently an hydraulic cement should always be formed of two different part, the pouzzola and the lime bases."—*Scientific Opinion.*

Explosion of Gas in a Concert-room.—An explosion, causing some damage to property, but, fortunately, unattended with injury to life or limb, recently occurred at the Co-operative Hall, Darwen. The large room of the hall, lately used as a theatre, was set apart for an entertainment to be given by Miss Emma Stanley, the veteran actress, as we might call her, were it not ungallant to speak of a lady as a veteran. About six o'clock on that evening she went to the hall along with her manager, Mr. Harrison, for the purpose of seeing that all things were in proper order. A strong smell of gas at once arrested their attention. The hall-keeper sent for a gas-workman, who went underneath the platform foolishly with an open light in his hand. The consequence was, that the gas immediately exploded with a loud report. The platform was shattered, and one of the pillars was entirely blown to pieces. The workman, almost miraculously, escaped unhurt; but the concussion had such an effect on Miss Stanley's nerves that she was incapacitated from performing that evening, for which loss, it is said, she intends to claim damages.

TENDERS.

For a villa residence at Putney. Mr. G. H. Page, architect. Quantities supplied:—

Easton Brothers	£1,387	0	0
Lathey Brothers	1,330	0	0
Aries	1,264	0	0
Merret & Ashby	1,231	0	0
Bass	1,190	0	0

For the erection of a villa residence on the Bromham-road, Bedford, for Mr. James Edward De Gruchy. Mr. John Usher, architect. Quantities supplied:—

Edey & Wildman	£1,165		0
Smith	1,153	13	0
Moore	1,146	0	0
Day	1,133	10	0
Dickens	1,124	0	0
Cunvin	1,115	0	0

For pipe sewers, &c., at Springfield Park, Lewisham:—

Hilton	£992	0	0
Hutchings	741	0	0
Treverton	600	0	0
Jones	588	0	0
Phillips	560	0	0
Reed	510	0	0
Blackburn	500	0	0
Crockett	495	0	0
Chardwell	484	0	0
Major	458	0	0
Harris	448	0	0
Thomson	442	15	10
Kent	415	0	0
Wigmore	380	0	0
Lutt	376	10	0
Turner & Cole	370	0	0
Ossenton & Carter	368	0	0
Pizzey	350	0	0
Rose	340	0	0
Smithson	330	0	0
Johnson	328	0	0
Young	310	0	0
Parker	295	0	0
Blomfield	249	0	0
Gardner	237	0	0
Beard	200	0	0

For five houses and shops in Sloane-square, Chelsea, for Mr. Oakeshott. Mr. J. W. Penfold, architect. Quantities not supplied:—

Eboral	£10,269	0	0
Piper	9,584	0	0
Belham	9,297	0	0
Turrell	8,811	0	0
Richardson	7,995	0	0
Wilson*	7,300	0	0
Wilson	5,845	0	0

* Subsequently an amended tender for the same sent in and accepted.

For house at Putney, for Mr. J. Clipson. Mr. R. Niblett, architect. Quantities supplied:—

Aviss	£449	0	0
Adamson & Sons	440	0	0
Aries	434	0	0

For the erection of a model lodging-house, &c., in Catherine-wheel-alley, Bishopsgate-street, for Mr. G. Barker. Messrs. Tolley & Dale, architects. Quantities supplied by Messrs. Birdseye & Stoner:—

Henshaw	£3,454	0	0
Smith	3,430	0	0
Johnson	3,252	0	0
Tully	3,210	0	0
Rivett	3,193	0	0
Fawcett	3,173	0	0
Newman & Mann	3,165	0	0
Hearle	3,054	0	0
Langmead	2,987	0	0
Williams	2,983	0	0
Ramsay	2,973	0	0
Manly & Rogers	2,970	0	0
Watts	2,967	0	0
Ashby & Sons	2,967	0	0
Howard	2,947	0	0
Ennor (accepted)	2,893	0	0
Piper & Co.	2,850	0	0

TO CORRESPONDENTS.

R. D. E. (not that we know of).—W. J. L. (let us see the MS. W. W. A. (we are forced to decline furnishing prices of materials).—Aqua (we know of no "public laundries" other than at "baths and washhouses").—R. R.—H. H. S.—W. P. G.—M. L.—Capt. T.—Rev. F. L.—G. S.—J. T.—C. M.—J. U.—Mr. E.—A. A.—H. H. W.—T. L. P.—Dr. I.—Col. G.—E. J. D.—E. S. G.—Anti-Sham.—W. C.—W. W. S.—W. W.—A. S.—J. P.—P. & B.—O. E. S.—Dr. J. S.—W. W.—J. L.—S. W. A.—Dr. T. S. R.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of Tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

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